



The

MODERN HOSPITAL



Vol. VI

February, 1916

No. 2



Treatment and Prophylaxis of Lobar Pneumonia

Recovery from Pneumonia depends chiefly upon the formation of antibodies destructive to the pneumococci and capable of neutralizing their toxic principles.



Syringe package of Pneumo-Serobacterin, ready for immediate use. The graduations of the syringe permit convenient administration of divided doses.

Antipneumococcic Serum, Polyvalent, Mulford, is the blood serum of horses immunized against different strains of pneumococci that produce corresponding antibodies, and is, therefore, polyvalent. **Used in the early stages of pneumonia** and in sufficient doses, the serum affords valuable aid on account of these contained specific antibodies.

Dosage and Administration—The therapeutic dose should be at least 100 mils. (c.c.), repeated every four to six hours, to secure sufficient antibodies in the patient to overcome infection. Since quick response is desired, intravenous use of the serum is preferred. In a series of cases reported the total amount of serum administered intravenously ranged from 190 to 460 mils. (c.c.); one patient received a total of 700 mils. (c.c.)

Antipneumococcic Serum Mulford (polyvalent) is furnished in aseptic glass syringes containing 20 mils. (c.c.) and in 50 mils. (c.c.) ampuls, with special apparatus for intravenous injection.

Pneumo-Serobacterin Treatment

The value of Pneumo-Serobacterin in the treatment of pneumonia depends upon the polyvalency, the production of antibodies and early administration. It is frequently employed as an adjunct to serum treatment, stimulating the production of greater amounts of antibodies by the patient.

Time is a vital factor in the treatment of pneumonia. The early use of Pneumo-Serobacterin is advised; its action is prompt and increased doses may be given at short intervals, securing quicker immunizing response.

Prophylactic Immunization Against Pneumonia

Summarizing a report by Sir Almoth E. Wright on immunization among a large number of African native miners having very low resistance against the pneumococcus, the London Lancet says: "It seems difficult to resist the conclusion that the pneumococcus vaccines employed by these observers lessened the incidence and mortality of pneumonia and other conditions produced by the pneumococcus, and among large collections of natives who were highly susceptible to its activity and under conditions favorable to the spread of infection."

For prophylaxis. Wright suggests doses of 1000 million pneumococci as the first dose, followed by a second dose of 1000 million. It is desirable to immunize persons especially susceptible to the pneumococcus, such as those who suffer from repeated attacks of pneumonia, and particularly aged persons.

Another field in which prophylactic immunization has been extensively employed is when pneumonia threatens as a complication of typhoid, influenza, etc. The work of Wright and his collaborators verifies in a conclusive manner the usefulness of this practice.

Pneumo-Serobacterin Mulford is supplied in packages of four graduated syringes, A, B, C, D strength, and in syringes of D strength separately.



A model biological laboratory for bleeding the hyperimmune animals and the filtering, testing and filling in sterile syringes of biological products. Steel and concrete construction, fire and vermin-proof; air supplied to filling rooms is purified by washing and filtering; special refrigerating rooms for carrying stock of antitoxins and biological products at uniform low temperature.

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THE MODERN HOSPITAL

A Monthly Journal Devoted to the Building, Equipment, and Administration of Hospitals, Sanatoriums, and Allied Institutions, and to their Medical, Surgical, and Nursing Services

Vol. VI

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THE NEW MOUNT SINAI HOSPITAL OF CLEVELAND

A Group of Buildings of Great Elasticity, to Which Indefinite Additions May Be Made Without Disturbing the Harmony of the Parts—Location of the Various Service Units Permits Great Economy in Administration

BY (I) WILLIAM S. POST, OF GEORGE B. POST & SONS, ARCHITECTS, NEW YORK; (II) S. S. GOLDWATER, M. D., HOSPITAL CONSULTANT

I.

THE problem of the architect in planning a hospital group of buildings is dependent, first, on the opportunity which the site presents. The plot in this case is bounded on the east by One Hundred and Fifth street, beyond which is an extended park system, and to the west by Ansel Road, which is relatively unimportant; to the north and south it is bounded by private property. The main building, therefore, was faced east, toward the park and a transverse corridor run from east to west to form the main artery of circulation between the buildings, which themselves were placed north and south, thus giving proper exposure to sunlight. Thus the general disposition of the buildings was easily determined.

The site, however, presented unusual features. There were two plateaus having a difference of elevation of about 8 feet and divided by a steep terrace. The upper level was approximately on grade with Ansel Road and about 20 feet above One Hundred and Fifth street; thus the lower level of the site was about 12 feet above that street. This circumstance was taken advantage of, as an examination of the block plan will show—the service buildings and service driveway being on the lower level, and the male public ward and the children's and maternity wards being on the higher level. The ground in front of the south half of the main building was cut away, bringing this down to the lower level, or approximately 12 feet above One Hundred and Fifth street. The approach to the front porte-cochere is by suffi-

ciently easy curved gradients from One Hundred and Fifth street. To further avoid unnecessary work, cellars were provided only where storage was necessary, and piping connections are made by means of the main transverse tunnel and branches.

The general plan is arranged for future extensions by means of added buildings, and care has been exercised in the construction and arrangement of those parts which are used temporarily for purposes that will not be their final use, so that they are convertible with the minimum of change. The problem of the exterior architecture was much simplified by the fact that the main building was made longer than the wards, and that the site is higher than the park, from which the building will be chiefly seen; thus it has been possible to finish all the buildings in the simplest way, except the main building, which has been carefully studied with a view to the purest and most restrained architectural expression. The style adopted is that of the English renaissance of the Georgian period, which seems particularly adapted to hospital buildings on account of its domestic character, and because it lends itself so well to a material of warm and cheerful tone. A wire-cut brick of general grayish pink, with unusually great variations of color, was selected, and was laid with a wide joint in old English bond, with black headers.

A base of granite is surmounted by a ground floor treatment in Indiana limestone, above which are walls of brick trimmed with limestone on the

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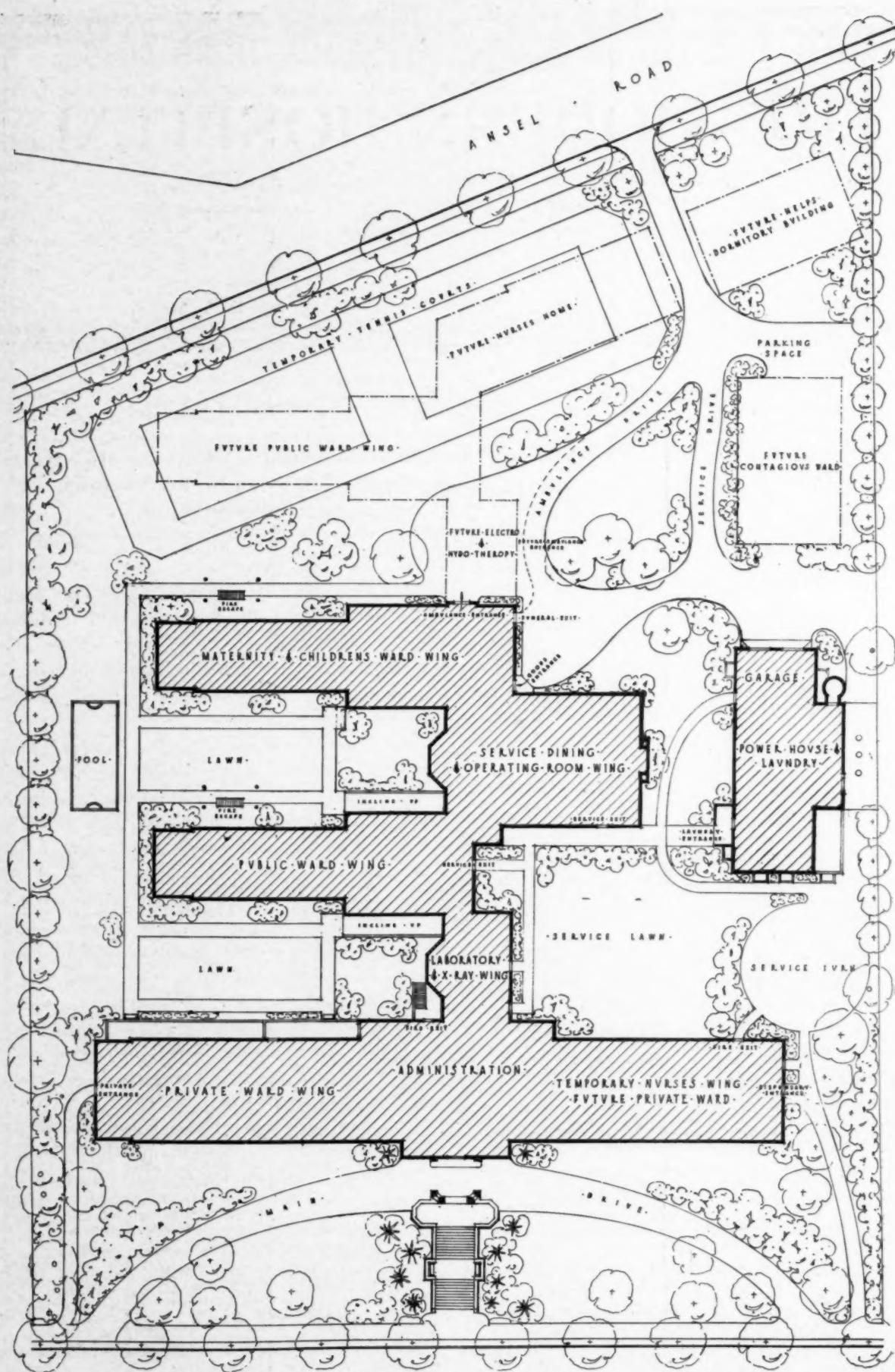


Fig. 1. Mount Sinai Hospital. Plot plan.

first story of the main building, and terra cotta matching the limestone above this, and including the cornice and the trims of the other buildings.

The interior finish is, with the exception of the entrance foyer, absolutely simple, the objects sought being permanence, sanitation, and economy of construction.

The interior arrangements will be described by Dr. Goldwater, who, as the professional expert of the hospital, collaborated with us in the preparation of the plans.

II.

The accompanying plot plan of the new Mount Sinai Hospital of Cleveland shows a site almost square, extending 328 feet from north to south, and having a length on the middle line of 412 feet from east to west. The plot has street frontage on the east and west; its southern line is contiguous to a residential block, which is partly covered by low, scattered dwellings, thus favoring the sun exposure of the hospital wards. To the north lies a one-story brick street car barn, which will probably be removed in the near future. The architectural front of the hospital is on the east, overlooking a public park.

The administration building, occupied in part by private patients, the two ward buildings already completed, and the third ward building, which is to be added in the future, extend in a north and south line from the main hospital corridor, which runs from the principal entrance in the east center of the administration building to the ambulance entrance at the west. To the north of this corridor are the kitchen and its accessories, the dining rooms (directly above the kitchen), operating rooms (above the dining rooms), laboratories, and various treatment rooms. The steam plant, laundry, and garage occupy a separate building, directly north of the kitchen; and nearby space has been reserved for an isolated building in which patients suffering from contagious diseases will ultimately be housed.

Nurses and resident employees will be accommodated, for the present, in certain sections of the administration building, described below. Later, when money becomes available, a nurses' home will be erected on a plot extending to the northeast from the western extremity of the main corridor; beyond the future nurses' home, space has been reserved for a dormitory building for servants.

At the outset the hospital will offer accommodations to 32 private patients, occupying single rooms; to 26 semiprivate patients, occupying small wards; to 23 male ward patients; to 25 female ward patients; to 25 maternity cases; and to 23 children; making a total of 154 beds. The fu-

ture capacity of the hospital will depend on the height of the ward building yet to be erected; it is expected that this will be either a three- or a four-story building, housing from 75 to 100 patients.

The relations of the various parts of the hospital are so intimate that the plan can best be described by treating the entire structure as a unit. Technically, while the hospital possesses much of the appearance and all of the advantages of the pavilion type, it may be more accurately described as a corridor hospital. There is a service tunnel beneath the ground floor.

The absence of a cellar made the planning more difficult than it would otherwise have been; but it is believed that the difficulties have been overcome, and that the location of the general entrance and the dispensary, ambulance, morgue, and goods entrances on the same level has been accomplished in a manner which will avoid all difficulty and inconvenience in the actual administration of the hospital.

The administration building, fronting on Wade Park, is built on a natural bluff, having an average height of 12 feet above the curb level of the street, on which a car line runs. The main entrance is reached by steps from the street, as well as by a driveway which inclines gradually from the street level to the porte-cochere.

On entering the building, the visitor finds himself in a square hall, with general office and application counter to the right, a reception room to the left, visitors' alcoves on either side of the main vestibule, and, directly facing the entrance, a square hall opening on one side into a fireproofed stair well and on the other into the passenger elevator. Communicating with the general office is the private office of the superintendent, which is large enough to serve also for a meeting room of the board. Adjoining this office is the office of the social welfare department, and beyond is the out-patient department, which has a separate street entrance.

It is expected that the out-patient service will be comparatively small for a time at least, owing to the residential character of the neighborhood; but it has been the experience of other high-class general hospitals that, irrespective of the location, out-patients are sooner or later attracted in large numbers, and therefore the plan provides for the extension of the out-patient department without material alteration to the present building.

Adjoining the out-patient entrance is an isolation room for contagious suspects, and three large examining rooms designated respectively for the various medical services, for eye, ear, nose, and

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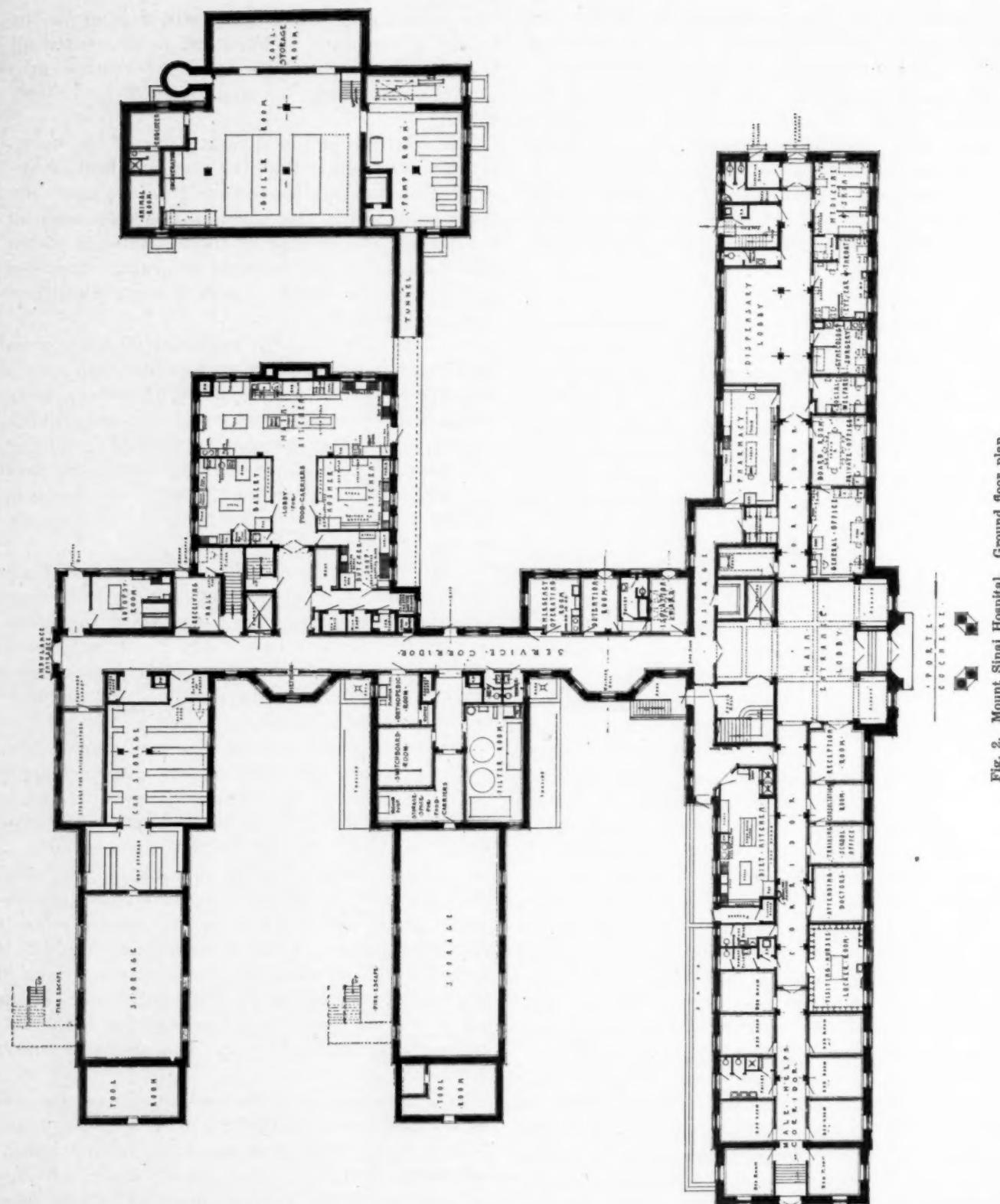


Fig. 2. Mount Sinai Hospital. Ground floor plan.

throat work, and for gynecology and surgery. The large dispensary lobby or waiting hall is the key to the future enlargement of the dispensary. This hall can be extended to the north into the hospital yard, and additional rooms for examination and treatment can be built on either side of the proposed extension.

The pharmacy is happily located between the dispensary and the main hospital; a dispensing

window opens directly into the dispensary lobby, while at the other end of the pharmacy is a door leading to a rear passage, which communicates with the main service corridor of the hospital.

Opposite the general office are a large vault for records and valuables, and a double row of telephone booths for the two Cleveland telephone services.

To the left of the main entrance, one finds, in the

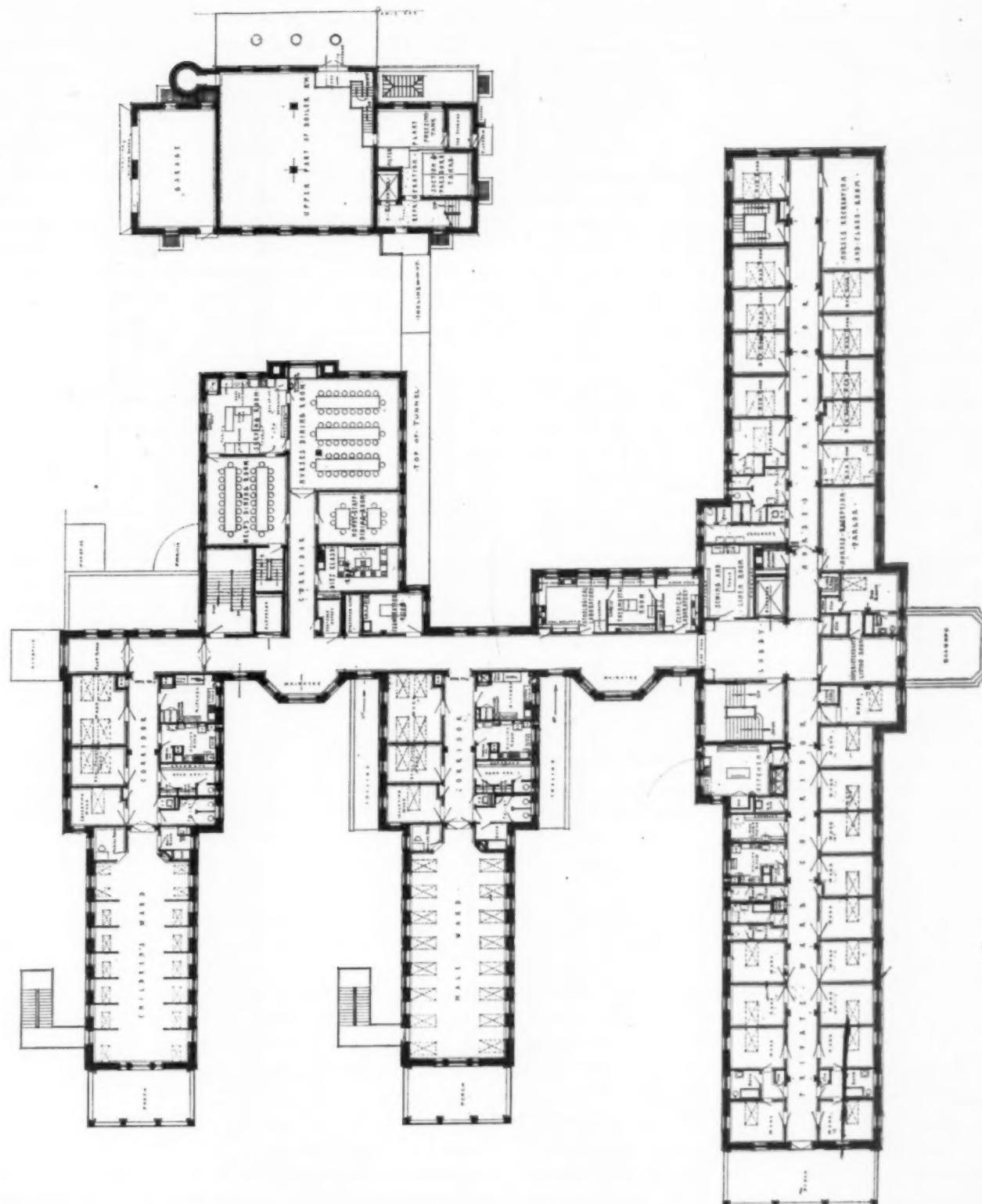


FIG. 3. Mount Sinai Hospital. First floor plan.

order stated, a general reception room, a private consultation room, an office for the principal of the nurses' training school, a coat room for the visiting staff, and a locker and dressing room for special or visiting nurses. Here, again, toilets and lavatories have been provided, intended for the use of the office staff and for visitors of the better class. At this point the corridor is cut off from the remainder of the floor, which is planned for

the temporary use of male servants, for whom eight double rooms have been provided. As the hospital grows in size and as the demand for space for administrative purposes increases, these temporary dormitories can be absorbed by the bureau of administration, other provision being then made for the male help.

Attention has been called to the pharmacy and to the rear passage by which it communicates

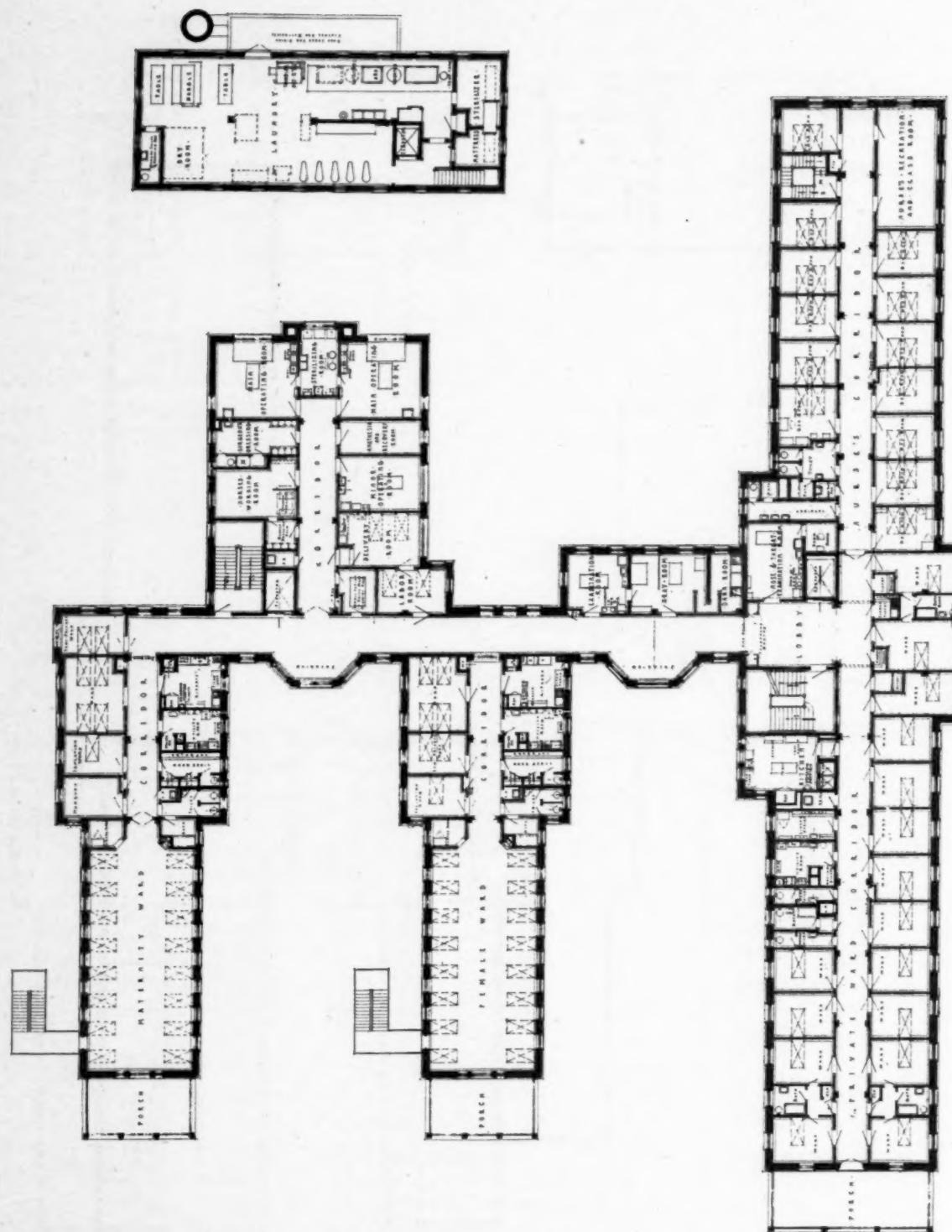


Fig. 4. Mount Sinai Hospital. Second floor plan.

with the principal service corridor of the hospital. This rear passage arrangement is duplicated in connection with the diet kitchen, where the trays for the private patients will be prepared.

From the square hall, directly behind the main entrance or lobby, one may enter the main service corridor of the hospital. From this corridor access is obtained to a group of separation or detention rooms, with direct outlet on the hospital yard, and to an emergency operating room, to which cases may be brought directly from the ambulance entrance at the northern extremity of the

corridor or from the main hospital entrance. Beneath the wards, communicating directly with the main service corridor, are toilet rooms for male and female employees, a trunk room, storage rooms, and a patients' clothing room.

On the opposite side of the corridor are the main kitchen, with windows on three sides; and adjoining the kitchen, a bakery, a *kosher* or diet kitchen, butcher shop, and a refrigerator corridor with ice boxes for meats, vegetables, and dairy products. A separate entrance has been provided for receiving goods, with an office for the receiv-

ing clerk; adjoining this is an autopsy room, with a private exit to the hospital yard. This exit will not be interfered with in any way by the future extension of the main service corridor to the west.

The first floor plan shows, in the administration building, private rooms and accessories occupying the south wing, which terminates in a porch 14 by 40 feet. The service rooms have been massed in a section of this wing, which is least favored with sun exposure.

Directly over the main hall is a suite of rooms designed for occupancy by the resident superintendent or other resident official, but convertible, if desired, into a patient's suite.

The northern half of the second floor of the administration building forms part of the temporary nurses' residence, the remainder of the nurses' residence being located on the floor immediately above. This section of the building was designed for the use of private patients rather than for nurses, and is to be considered from this point of view. The nurses' reception room and the larger recreation room can easily be subdivided, the one into two and the other into three private rooms. The nurses' reception room can be entered directly from the central lobby in the administration building; in this room visitors will be received and entertained. The nurses' recreation room, however, has been located in the most remote part of the floor, as far away as possible from the rooms to be occupied by private patients. The nurses' bath rooms, toilets, and lavatories will later serve similar uses for private patients. One section, however, will be converted into a well-equipped utility room, corresponding to the utility room in the present private patients' wing; the great length of the building creates a need for two rooms of this character.

An interesting feature of the connecting corridor on this floor is its expansion, at two points, into recreation spaces or day rooms, overlooking the hospital lawn and lying respectively between the private patients' wing and the adult ward, and between the latter ward and the children's ward. Adjacent to the first of these day rooms or solaria is the suite of the pathological department, including a room for pathology, one for bacteriology, and one for clinical microscopy.

Directly over the main kitchen is a large serving room, from which the adjacent dining rooms can be directly reached. The dining rooms include one for nurses, one for servants, and one for administrative officers. The dining room for the servants, however, is shut off from the nurses' corridor, and is approached by a separate staircase from the service corridor on the ground floor. In this section of the building there have been

placed a diet class room; a special medical examining room, which can be used in connection with the adjacent wards; a stretcher closet; and a portable tub closet.

Of the two wards on this level, the male ward is typical. The children's ward is similar in design, but subdivided by low glass screens into semi-inclosed individual cubicles. In the open ward there is space for 16 beds, and in the three side rooms of each ward seven additional patients can be accommodated. The ward terminates at its southern extremity in a porch. At the other end is a glass-inclosed nurses' office and chart room. Other conveniences are the patients' toilet and bath; cleaners' closet, with slop sink, linen, and supply room; nurses' toilet, utility room, and ward kitchen, all of which open on the private corridor, which meets at right angles the main or connecting corridor of the hospital. At the junction the main corridor is lighted and ventilated on its northern side by three windows.

The utility room plan, which has been used in this instance, is presented as a typical room suitable for general ward service anywhere. This room should have a width of not less than 10 feet, and, if arranged as shown in the accompanying plan, the door may be safely omitted, thus facilitating the movements of nurses. Ranged along the side of the room which is visible from the ward corridor are soiled clothes hamper, wash basin, instrument sterilizer, marble shelf with gas plate, utensil sterilizer, and a specimen closet with louvers. On the opposite side of the room a drying closet and blanket warmer are first provided, and in the recess behind these are placed the bedpan sink and a deep sink or tub with drain board.

On the next floor the general female ward and the maternity ward respectively are typical and require no further description, except that in the case of the maternity ward a side room serves as a nursery.

In the administration building the south wing, which is allotted to private patients, duplicates the arrangement of the floor below; the north wing, temporarily allotted to nurses, also corresponds substantially with the floor directly beneath it.

Adjoining the main lobby on this floor are a stretcher closet, a portable tub closet for the use of private patients, flower closet, with sink and shelves, and a nose and throat examining room, with adjoining dark room.

The x-ray department opens into the main connecting corridor, and is equally accessible from the administration building and the ward buildings.

The kitchen and service wing is devoted on this floor mainly to surgical purposes. In the final

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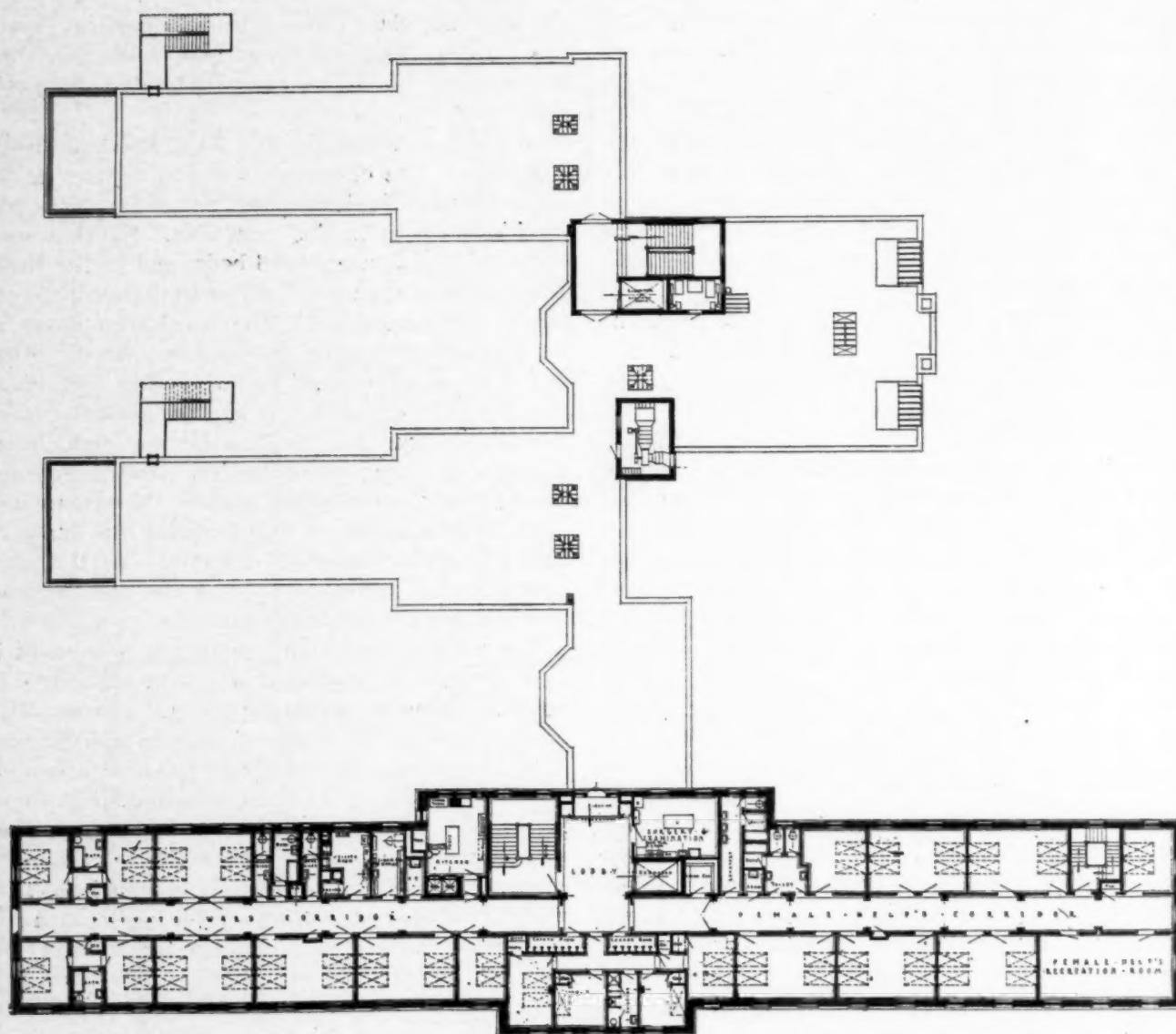


Fig. 5. Mount Sinai Hospital. Third floor plan.

arrangement of the hospital it is proposed that the wards on this level shall be surgical wards; direct corridor connection with the operating rooms, without elevator service, is thus provided.

The plan of the operating floor is simple and requires little explanation. There are two main operating rooms, both provided with ample north and top light; the sterilizing room lies between the two main operating rooms, and communicates with both. An anesthesia and recovery room, a surgeons' dressing room, a nurses' work room, a minor operating room, a nurses' dressing room, a consultation room, and a labor room and delivery room complete the surgical center.

The administrative building alone has three stories above the ground floor. It is divided into a wing for semiprivate patients and a wing which is temporarily occupied by servants, but which later is to become another semiprivate ward. In the middle section is a group of rooms with a pri-

vate corridor for the medical house staff. Directly off the main or central lobby is a well-equipped examination and surgical dressing room, a valuable accessory to the semiprivate ward.

The simplicity of the boiler house is due to the fact that, in the opinion of the trustees, power for this Cleveland hospital can be purchased more cheaply than it could be independently produced; steam is generated for heating and sterilizing purposes, but the electric generating plant, which is a familiar feature of hospitals of the importance and size of the present one, is omitted. A garage and a garbage destructor are located in this building. The second floor of the boiler house is devoted almost entirely to laundry purposes, a small section being reserved for the mattress and clothes sterilizer.

In studying the accompanying plan, the reader is requested to note:

a. Its great elasticity.

- b. The relation between the dispensary, social welfare department, and general office.
- c. Location and relations of pharmacy.
- d. The numerous conveniences afforded by the grouping of entrances, exits, and various departments about the central or communicating corridor.
- e. The location of the kitchen and operating room wing, central to the completed hospital.
- f. The readiness with which the hospital may be expanded to accommodate twice the present number of patients, almost without alteration of the buildings already completed.
- g. The southern exposure of and the quiet and pleasant outlook from the wards.
- h. The alternation of wings on either side of the communicating corridor, so as to provide good light and ventilation for this corridor throughout its length.
- i. The readiness with which each department of the hospital can be expanded without regard

to the other parts; for instance, additional accommodations may be provided for private patients, or for semiprivate patients, or for ward patients, or for dispensary patients, or for all four of these simultaneously; the laboratory can be increased independently of any other feature, and the same is true of the x-ray department, the laundry and power plant, the bureau of administration, the servants' dormitories, the kitchen, and the nurses' home.

Although this fire-proof hospital is durably constructed, well finished, highly subdivided, and fully equipped for the best possible kind of service; and notwithstanding the fact that 58 of the total of 154 beds are in the private patients' department, the total cost of construction, thanks to the alertness and business acumen of the building committee, is only \$410,000, exclusive of fees. Furthermore, the projected additions to the plant will have the effect of materially reducing the average bed cost.

SOME OF THE HOSPITAL STANDARDS OF TROPICAL AMERICA¹

Isthmian Canal Commission and the United Fruit Company Largely Responsible for Central American Health Activities—Some of the Hospitals

By B. W. CALDWELL, M. D., SUPERINTENDENT, HOSPITAL SANTO TOMAS, PANAMA; HOSPITAL ADMINISTRATOR, AMERICAN RED CROSS SANITARY COMMISSION TO SERBIA

HOSPITALS in the tropics, as elsewhere, are good, bad, or indifferent, dependent to a very large degree on the man or organization who originates and supports them. In tropical America the governments, as a rule, take great pride in their eleemosynary institutions, and build and equip excellent hospitals in the capitals and metropoli of their respective countries. The administration of the hospitals supported by the Latin-American governments varies largely with the character of the political party in power, although occasionally a modern well-managed hospital is found, in spite of an exceedingly bad existing government.

The medical profession in the tropics is individually and collectively of high order and ability. Usually the sons of wealthy men, whose families have for generations been educated in the best universities of Europe and America, the medical men of the tropics have had all the advantages which money, influence, time, and travel can confer in the pursuit of their professional education.

The best of them are usually educated in the universities of their native land, and after the

completion of their academic course are sent to the medical schools in Paris, Munich, Vienna, and Berlin, or to the best of our own medical colleges, for the completion of their medical studies and to serve their internships. Medical literature and accomplishment are resplendent with the names of our brilliant Latin-American colleagues. From this class of medical men the staffs of the hospitals are selected, and in many hospitals in the tropics medical and surgical skill on a par with that of Europe and America is exhibited. The "bon marche" of their hospitals is a matter of professional pride among the physicians of tropical America, and by frequent visits to the medical centers of the world and to the noted hospitals of both continents they maintain a high order of medical skill, surgical technic, and administration.

The construction of hospitals in the tropics admits of the most essential advantages when built of wood and in the pavilion type of arrangement. The pavilions should be uniform in size and in detail, in no case more than two stories in height, and usually but a single story is preferable. This applies always when sufficient, well-located sites are available, without regard to high values of location, when economy of space makes concrete or masonry construction advisable in the interests of economy. But experience has taught that, for

¹This paper was prepared by Dr. Caldwell last summer just before he left to join the American Red Cross forces for the fight on typhus in Serbia. The United Fruit Company illustrations were sent to THE MODERN HOSPITAL by Dr. R. E. Swigart only a few days before his death. For the Isthmian Canal Hospital pictures we are indebted to the Surgeon General's Library, Washington, D. C.

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comfort, safety, sanitation, economy, and facility in administration, wooden construction of well-grouped, systematically arranged pavilions is much to be preferred.

The prime essentials in hospital construction in the tropics is the abundant and free circulation of air, beneath as well as above, around and through each building, without which the stay of the pa-

pensive, for the reason that repairs and alterations of the concrete buildings are always attended with heavy expense, loss of time, and consequent inconvenience, while the necessary changes and repairs to wooden construction can be effected with a minimum of each.

A good type of hospital building for the tropics is one about 78 feet in length by 40 wide, and one story in height, erected upon concrete pillars, at least 3 feet above the ground at the end nearest the earth. These wards should be high enough to permit a 30-inch band of wire screening to be placed around the walls immediately next to the ceiling. The wards should be open wards, with an 8-foot veranda running entirely around each ward, and this veranda should be completely and effectively screened with small mesh wire screening. There should be abundant openings for windows, which should be provided with blinds, but which need not be screened. The verandas should be wide enough to permit

the patients to spend as much time as possible, in their chairs or beds, upon them, for in the tropics the patients should live on these verandas and use the inside of the wards only for sleeping.

The openings in the wards proper should be sufficient in number and large enough to afford a maximum of soft, shaded light and the free circulation of air. The wards should be properly ceiled, but provision must be made to give ample



Fig. 1. View in Ancon Hospital grounds.

tient in the wards would become all but unbearable. Complete and effective screening against mosquitoes, flies, and other insects is an absolute necessity. Sunshine and natural drainage must be taken into full consideration and duly provided for, as more than one-half of each year is taken up by the rainy season in the tropics, and both buildings and grounds must be as free from dampness as possible. Shade and landscape improvement are easily provided for, as the tropical plants and trees are of rapid growth, and are things of beauty in their abundant foliage and rich blossoming. Artificial heat need never be taken into account, for in few places and only in the high altitudes is its provision necessary. Concrete buildings for hospitals must be constructed with their first floor laid on the earth itself, with heavy masonry walls, and this, with the always difficult arrangement for lighting and the admission of the sunshine, gives the atmosphere of their interiors a cold and damp character that is anything but desirable.

The lifetime of the wooden constructed hospital is easily twenty-five years, with reasonable care and upkeep, and the interest on the difference in the cost of construction of a hospital of wooden pavilions and one of concrete would in twenty-five years be sufficient to erect a new hospital at the end of that period along the more modern ideas of the later time. The maintenance is less ex-



Fig. 2. Isthmian Canal Commission sanatorium at Taboga Island.

vent to the cushion of hot air which invariably collects between the ceiling and the roof, and which adds much to the temperature of the ward when this precaution is neglected. Tile roofing is the best for comfort and appearance, although iron roofing can be used to advantage when tiles are not available. Provision must also be made for the prevention of the entrance of ants and other insects into the wooden structure, and this

can be easily accomplished by placing an iron or tin shield around each pillar, with a small canal running around the metal into which crude oil can be poured. This arrangement is inexpensive and effective.

To the side of each ward and just off the veranda the bath and water-closet arrangements are installed, and the disposal of wastes is effected with a minimum of trouble and expense, and the essentials of cleanliness, sanitation, and the free circulation of air are obtained with little difficulty. The pavilions are arranged on either side of a central line of buildings, on which line are placed in order the administration building, admitting ward, operating room, and laboratory. One side of the hospital is for the male and the other for the female patients. The pavilions are arranged in rows, with their bases resting on a semicircle and the rows diverging as they lengthen. No row of buildings should be nearer than 70 feet to the next row, and at least 35 feet should intervene between the ends of pavilions. The intervening space should be covered and screened, and can be utilized for ward laboratories, nurses' offices, and dining room.

On each side of the hospital a contagion ward should be provided, at least two-thirds in size of the other pavilions, and otherwise identical in construction, with the exception that its interior should be divided into equal spaces, screened from

carpenter shop, kitchens, electric light and ice plant should be constructed, and at the farthest end the laundry. All of these should be of wood, except the store rooms and the light and ice plant.

When the Americans took charge of the Panama Canal work, the most serious problem which confronted the commission was the care and comfort of the men who were to be employed. The failure



Fig. 4. Palo Seco leper colony from the bay.

of the French to complete the canal was due more to their inability to prevent the heavy morbidity and mortality from disease, with the attendant loss of efficiency and "d'esprit de corps," than to lack of money, machinery, or any other cause. If their records are to be depended on, the French lost more men in a single year than the Americans lost in the entire ten years of their construction period. Sanitation without proper hospitalization would have been impossible in Panama as elsewhere. The master genius who instituted, directed, and controlled sanitation on the isthmus

from the time before the first steam shovel began to move the reluctant earth until the canal was practically completed recognized this principle from the first. General Gorgas' first thought and care was for the health and comfort of the employees on the work, and to him and to his assistants, Colonel John L. Phillips, of the Army Medical Corps, and Surgeon H. R. Carter, of the Public Health and Marine Hospital Service, is due the credit of establishing and maintaining the most complete and efficacious system of hospitalization, and under the greatest difficulties, that has ever been instituted in any time or at any place.

To these three able administrators and master sanitarians the world owes the construction of the Panama Canal, the employees owe the good health and the careful attention which they and their families enjoyed during the period of their employment in Panama, and medicine and sanitation its greatest gratitude for the lessons which



Fig. 3. Isthmian Canal Commission hospital at Colon.

floor to ceiling, and sufficiently large in area to contain a bed for the patient, and a bedside table, and to give sufficient space for the free movement of the doctor or nurse without coming into contact with the furniture of the room.

At the farther end of the row of pavilions a line of buildings devoted to the use of store rooms,

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these three taught and demonstrated by their work.

It is a feat without parallel in medical or sanitary history that General Gorgas accomplished when he cleaned up the Panama hotbed of yellow fever and other pestilence, and for ten years did not permit an epidemic of any disease to gain a foothold there. He changed the mental attitude of the employees from that of insecurity and fear



Fig. 5. A "street" in the native village of Bocas del Toro, Panama, when the United Fruit Company went there to establish health conditions.

which existed in 1905 and 1906 to one of peace of mind and security. He made them know and feel that they could live and work in Panama with the same security of health that they would enjoy in their homes in the states. The work was not interrupted for a single hour during these ten years because of pestilence or epidemic. Such was the materialization of the theory of applied sanitation, the demonstration of the possibilities of sanitary effort, the like of which will probably never again be repeated.

The Americans found on their entrance into Panama the hospitals of the French regime in bad physical condition, and only two of them in serviceable condition of repair. Several were dilapidated, and in one or two instances only masonry pillars were left to mark the sites of important French hospitals.

At once General Gorgas systematized the hospitalization. He repaired and enlarged the old French plant at Ancon, and instituted a base hospital which at the time of the maximum employment of labor contained 1,200 patients. He surrounded himself with the best medical, surgical, and scientific talent he could secure. He secured a distinguished and efficient staff for this great hospital, and magnificently equipped it in every way. He built at Colon another base hospital, with a capacity of 700 patients, and he divided the intervening zone into districts, where hospitals of greater or less capacity were maintained under the direction of a competent medical officer.

An insane asylum was built and maintained, and

a few miles up the coast from Panama a site was selected for a leper lazaret, and a home was built where these unfortunates could live with the greatest comfort and freedom for themselves consistent with safety for the community at large. Across Panama Bay, on Toboga Island, a large sanatorium was maintained, where the sick or injured employee could convalesce, in the caressing breeze of the Pacific and far from the noise of the work.

Not a single case of illness among the employee or civil population was permitted to go unreported or unattended. A competent physician at once took charge of the patient wherever he became ill, and held the case under observation until the diagnosis determined whether he should be removed to the base hospital or could be safely treated in the local hospital or his own home. Every case of contagious disease was held and isolated, and the community protected from the spread of the disease.

An effective quarantine on vessels calling at all Panama ports was maintained under Surgeon J. H. Perry, one of the most efficient men in the Public Health and Marine Hospital Service. No member of the crew or passenger on any vessel was permitted to land without satisfying the examining quarantine officer that all was well. The quarantine service maintained a hospital and isolation camp on either side of the canal, and not a single case of quarantinable disease was permitted to enter Panama or the Canal Zone.

The private hospitals in the tropics where they



Fig. 6. The same "street" shown in Fig. 5 after the sanitary work of the United Fruit Company was completed.

are worthy of the name are, as a rule, well constructed, well equipped, and properly managed. The care the patients receive in them is as good as they would receive in any similar institution anywhere. The buildings are pleasantly located, the staffs experienced and efficient, and the nursing beyond criticism.

In the English and French colonies the government maintains good, serviceable hospitals, where

excellent laboratories are to be found and much research work in tropical medicine is being done. Many of the medical officers in these hospitals are sent from the schools of tropical medicine in London and Liverpool, and are skilled physicians and surgeons as well as scientists. Tropical medicine owes much to these splendid medical officers of the English colonial hospitals.

The most complete system of hospitals as well



Fig. 7. United Fruit Company's hospital for white patients at Bocas del Toro, Panama. This site was an impenetrable swamp.

as the most extensive existing in the tropics is that which the United Fruit Company maintains for the care of its labor on its banana plantations. Under the very able and efficient directorship of the late Dr. R. E. Swigart this company built in Cuba, Guatemala, Honduras, Costa Rica, Panama, and Colombia, wherever their immense plantations are located, modern complete hospitals. Dr. Swigart, in a most careful manner, equipped them with everything that a well-managed hospital needs. He supplied each of them with the best superintendent and staff which a more liberal salary could command, and with a sufficient nursing force that is as generously paid. The results which this great system of hospitals has obtained in its care of the thousands of laborers on the company's plantations is on a par with that obtained by the Sanitary Department in the Canal Zone.

In connection with this magnificent group of hospitals, well-organized laboratories are maintained under the directorship of Professor Richard P. Strong, of the School of Tropical Medicine at Harvard. In these laboratories research work in tropical medicine of the highest order is being done, and not only the United Fruit Company, but the entire medical world, is receiving most valuable returns from this very important branch of scientific endeavor.

Another class of hospitals in the tropics are

those which are operated and maintained by the great centros in Cuba. The largest and probably the best is the Centro de Gallegos de Habana, with its membership of over 40,000. Each member, in addition to an initiation fee, pays monthly dues of a comparatively small sum, in return for which he receives, among other things, the privileges of the finest club in Havana, access to schools of instruction in the languages or almost any other subject, legal advice when necessary, the care of a competent physician when ill, and free admission to a hospital. These large centros are immensely wealthy, and enjoy a large monthly income. They own and operate their hospitals, and money is not spared in securing care and comfort for their sick in hospitals and in the proper equipping and maintaining of the institutions. The staffs are invariably well selected, and everything possible which makes for efficiency is worked out. The patients receive the best attention, and the administration of these hospitals is on the same scientific basis as the society itself.

Our tropical friends are beginning to build great hospitals. Each year sees more and better hospitals under construction. They are doing a great



Fig. 8. United Fruit Company's new hospital at Quiriguá, Guatemala. The perfectly screened houses of officers, cottages for minor employees and camps for laborers, with their cleanly environments, conform in sanitary requirements to the recently erected concrete and steel hospital, perfect in detail, the finest structure of its kind found anywhere and accommodating 150 patients of all classes, with corridor space for an overflow if necessary.

work in the best way they know. Often hampered by lack of funds and sometimes interfered with by indifferent politicians, in spite of all these impediments they are making great progress. Their field is wide and useful, and the mission they are fulfilling is as great as humanity itself, for in the tropics great wealth is possessed by the very few, and hospitals there are run not for gain, but for the best rewards which sweet charity can bestow.

The most ancient form of Christian benevolent institutions is the xenodochium hospital, originally a lodging house for pilgrims and strangers, and later used for orphans, the poor, and the sick. Originally institutions of hospitality and charity, established in monasteries and in cities under Episcopal domination, they became in the course of time independent institutions, though they continued to be closely connected with the Church and the monasteries, which is evident from their ecclesiastical supervision and from the religious life and service that prevailed.

ACTUAL VALUES IN THE NAUHEIM BATH SYSTEM

A Study Comparing the Famous German System With the Saratoga Baths Favorable to the Latter—Gas or Salts as Remedial Agents

BY CHARLES G. ANTHONY, C. E., CONSULTING ENGINEER, SARATOGA SPRINGS, NEW YORK

ON December 24, 1913, the commissioners of the state reservation at Saratoga Springs ordered me to investigate several European spas. In compliance with these orders I visited Vichy, Brückena, Wiesbaden, Nauheim, Kissingen, Harrogate, Bath, and Homburg. Several days were spent at Nauheim in investigating the Nauheim system of baths, with special attention to the mechanical equipment. After my return to Saratoga Springs, experiments were carried on for two years with the Saratoga waters in order that we might, if possible, equal the Nauheim baths. At the same time careful experiments were made with the artificial Nauheim baths, and comparisons were drawn between these and the Nauheim and the Saratoga baths.

NAUHEIM BATHS

Dr. Albert Warren Ferris, superintending director for the commissioners at Saratoga Springs, says that in 1859 Beneke told the medical profession that baths given with carbonated water exerted a favorable influence on certain circulatory conditions. Since that time the treatment has been thoroughly studied, and in 1880 August Schott perfected a recognized system of baths. This original system has undergone evolutionary changes until there is now a definite method of care for cases of the heart and arterial degeneration, comprising CO_2 baths, diet, and exercise, and it is known as the "Nauheim system." It takes its name from the name of the German town where it was elaborated, Bad-Neuheim.

That this system should claim the attention of the entire medical profession is shown by the fact that a medical examination of all the employees of a New York city bank ended in the surprising results summarized in the following quotation from the report rendered by the physicians making the examination: "100 percent of the employees were found to be abnormal, and on the sure road to diseases of the heart, lungs, kidneys, or blood vessels."

The death rate from diseases of the heart and kidneys has practically doubled in the past thirty years. Dr. S. S. Goldwater, health commissioner of New York city, commenting on the fact, said: "We certainly know how to recognize these diseases in their earlier stages, long before the victims are incapacitated, and in a large percentage of cases we can postpone their development, pro-

mote the comfort of the individual and prolong his working life."

Dr. Ferris says: "We know that degenerative changes in the heart muscles are due largely to errors in diet and resulting digestive disorders; to infectious diseases, such as diphtheria, rheumatism, typhoid fever, pneumonia, and disturbances in secretion, such as kidney diseases. Many cases of such degenerative changes are secondary to valvular lesions. The term arteriosclerosis, or, popularly, 'hardening of the arteries,' has become 'as familiar as a household word.' A better term is 'arterial degeneration,' and we must consider it in connection with heart degeneration, for it is largely due to intestinal putrefaction and to the presence of certain bacteria in the intestines, caused primarily by improper diet. Anxiety and worry always accelerate arterial degeneration. There is a very large nervous element in its progress and production. The hardworking, overfed, underslept business man is especially liable to arteriosclerosis. Its early detection, therefore, is of prime importance; for, if the Nauheim system be employed in the early stages, the results are often satisfactory."

Dr. Simon Baruch, of New York, made a trip to Bad-Nauheim to study the Nauheim system in the interests of the commissioners of the state reservation at Saratoga Springs, and submitted a very interesting report. He is now an ardent advocate of the system.

The principal therapeutic factors at Bad-Nauheim are the three saline springs, having a temperature of from 29.9 degrees to 34.4 degrees. These springs are used for the baths, and the waters are rich in CO_2 gas; but, as will be shown later, they do not contain as much gas as the waters from the springs at Saratoga. The Nauheim springs Nos. 7, 12, and 14 are 159.5, 180.0, and 209.5 meters deep respectively. The analyses for these three springs, as well as for the three Saratoga springs which are used for bathing, are given in the appended table.

The Nauheim course consists of a series of baths made up of a combination of the following four baths:

The brine bath, with regulated salts, no CO_2 (Soolbad).

The thermal bath (Thermalbad).

The thermal effervescent bath (Thermalsprudelbad).

Chemical Combinations	Saratoga Springs			Bad-Nauheim		
	Lincoln	High Rock	Hathorn No. 1	Sprudel No. 7	Sprudel No. 12	Sprudel No. 14
Ammonium chloride	11.93	5.73	23.74	50.80	57.50	75.30
Lithium chloride	27.62	31.48	27.55	56.00	62.60	40.50
Potassium chloride	463.52	73.42	503.50	595.30	838.10	643.60
Sodium chloride	3,136.35	325.63	3,662.99	19,540.20	27,152.50	22,709.00
Potassium bromide	19.50	8.30	22.00	.....	.....	.....
Potassium iodide	1.00	2.10	1.50	.....	.....	.....
Sodium sulphate	trace	45.03	6.54	.....	.....	.....
Sodium metaborate	trace	trace	trace	.....	.....	.....
Sodium nitrate	trace	3.21	0.12	.....	.....	.....
Sodium nitrite	trace	trace	trace	.....	.....	.....
Potassium bicarbonate	none	none	none	.....	.....	.....
Sodium bicarbonate	1,368.99	889.13	490.05	.....	.....	.....
Barium bicarbonate	7.12	1.24	10.45	.....	.....	.....
Strontium bicarbonate	trace	none	trace	30.20	50.00	45.60
Magnesium bicarbonate	1,301.02	438.40	1,335.59	.....	.....	.....
Calcium bicarbonate	1,887.10	1,226.83	2,298.92	2,489.40	1,795.30	1,601.90
Ferrous bicarbonate	39.81	55.05	27.26	21.80	28.90	30.90
Mangano manganic oxide	none	none	none	.....	.....	.....
Alumins	15.12	3.60	1.77	.....	.....	.....
Silica	44.10	25.30	12.75	16.40	19.40	17.30
Sodium bromide .....	.....	.....	.....	9.00	12.20	17.00
Calcium chloride .....	.....	.....	.....	1,364.30	2,761.90	2,449.20
Magnesium chloride .....	.....	.....	.....	394.80	528.10	466.30
Mangano bicarbonate .....	.....	.....	.....	6.30	5.20	4.10
Dinatrium phosphate .....	.....	.....	.....	.40	.40	.50
Dinatrium arsenate .....	.....	.....	.....	.90	.70	.80
Potassium sulphate .....	.....	.....	.....	65.20	81.80	78.70
Total solids	8,323.18	3,134.25	8,414.73	24,641.00	33,394.60	28,180.80

The effervescent bath (Sprudelbad).

For the first, or brine, bath, only spring No. 7 is used, while the other three kinds of baths can be given from any of the three springs. The thermal baths are prepared from water thrown up from the springs into large open reservoirs, where it stands for several hours and the gas is allowed to escape. My objection to this procedure is that as soon as the gas escapes, the bicarbonates change to insoluble carbonates and the water takes on a dirty red color. Where we did the same thing at Saratoga, a great many patients hesitated to take the bath. It is true that a bath in anything but crystal clear water jars the esthetic sensibilities of the average American, and the psychological effect of a bath in dirty red water is objectionable.

Some of the water from any of the three springs is carried under the ground to closed tanks, from which it is conducted to the bath tubs. This water from the closed tanks furnishes the so-called thermalsprudel baths, while the water which flows directly out of the earth to the bath tubs forms the sprudel baths. The thermal effervescent water is not so highly carbonated as the effervescent bath, for some of the gas has been allowed to escape through the walls of the storage reservoir.

Naturally, there is no fixed system used in prescribing the baths. The individual needs of the patient govern the course of treatment. The patient may be started with the thermal bath and never progress beyond this bath. Others may be started with the thermal effervescent and then progress to the effervescent bath, and, again, some patients may receive all four baths. The treatment extends over a period of from three to eight weeks. I will show that the Nauheim management have not made the most of their possibilities.

I will point out their shortcomings and show where the baths given at Saratoga are superior to those of Nauheim, and will also show that the artificial baths cannot equal those at Nauheim, and are far behind the baths given at Saratoga.

To prove my contention, it is necessary for the reader to understand some chemical, physical, and mechanical features in regard to the CO₂ gas and the equipment used in giving these baths. In mineral water I consider the gas to exist in four conditions: (1) fixed gas, (2) partially fixed, (3) gas in solution, (4) gas as a bubble.

1. The fixed gas is found in the carbonates, and exists in the mineral matter, even after the water be evaporated to dryness.

2. The partially fixed gas is found in the bicarbonates, and can be liberated by heating the water, thus breaking down the bicarbonates to carbonates.

3. Gas in solution I consider as gas absorbed by the water, and I regard it as in two parts—one part of this gas in solution completely saturates the water, while the other part I regard as supersaturation. The gas forming the supersaturation can be driven from the water by agitating it. Water saturated with CO₂ gas may not show any signs of effervescence and be absolutely quiescent, yet when shaken slightly it may boil and effervesce vigorously. The part of the gas which is in solution cannot be driven off by shaking, but can be liberated by heating the water.

4. Where the gas exists as a bubble, the water is supersaturated, or else the gas has not had time to go into solution and has simply displaced some of the water. This gas is not combined with the water, and immediately rises to the top and disappears into the atmosphere. A liter of pure water at 0 degrees C. and 760 mm. barometer can absorb and hold in solution 1.713 liters of CO₂. Every

increase in temperature or increase in salts decreases the absorbing power of the water. For example, salt water, with 3.34 percent of salt and a temperature of 31.9 degrees C. and 760 mm. barometer, can hold in solution but 0.56 liters of CO_2 , not quite one-third as much as fresh water can absorb and hold under the same temperature and pressure conditions; yet it is possible to supersaturate this water and make it contain more gas than it would contain under normal conditions. It is around this discovery and theory that the Saratoga apparatus has been constructed, resulting in the strongest carbonated bath in the world.

At Nauheim the oversaturation, or supersaturation, is accomplished by nature in the earth, and depends on the hydrostatic pressure exerted by the superimposed ground water. My objection to the Nauheim method is that they pipe the water direct from the spring to the tub, and large quantities of free gas are carried in the pipes, causing a churning and pulsating condition which shakes out a large quantity of the supersaturation. This objectionable feature is eliminated at Saratoga, and the result is a much larger content of gas in the water available in the bath.

It will be of particular interest to physicians to know the relative carbonic acid content of the three most important kinds of baths—the effervescent, the thermal effervescent, and the thermal—and to compare these results with the Saratoga baths and the artificial Nauheim baths. To make this clear, the averages from a number of tests on Spring No. 12 at Nauheim are recorded. For the weight analyses of the carbonic acid, the samples of water were taken the same day—

1. Directly at the spring.
2. From the middle of the tub filled with effervescent water (Sprudelbad).
3. From the middle of the tub of thermal effervescent water (Thermalsprudelbad).
4. From the middle of the tub of thermal water (Thermalbad).

will contain 560 cc. of CO_2 gas under normal conditions, so that it is seen that the supersaturation is 24 percent, while the thermal effervescent bath has practically a saturated solution, and the thermal bath about a half-saturated solution of carbonic acid. Thus, in comparisons between the Nauheim, the Saratoga, and the artificial baths, it is necessary to compare only the supersaturations; for, if the water be supersaturated, we know that the other conditions of fixed gas and saturation are satisfied. The following table shows the results of my experiments in Europe and at Saratoga:

Bath	Supersaturation
Bad-Nauheim	25%
Homburg	38%
Bad-Kissingen	45%
Brückena	50%
High Rock baths (Saratoga)	31%
Kayaderosseras baths (Saratoga)	33%
Lincoln baths	55%
Artificial Nauheim baths	7% to 15%

It will be seen from these results that several European spas have a higher gas content than has Bad-Nauheim, and that at the Lincoln bath house, Saratoga, is the highest supersaturation ever obtained. The artificial baths are a poor makeshift, and do not contain enough gas to be of much value.

It is interesting to note that at the six places named as having stronger baths than at Nauheim, pumps are used to force the water from the springs to the bath house, and the uniformly high results are obtained because they pump the water with long-slow-stroke pumps, holding the water under pressure and forcing it through large pipes, free from right-angled bends, without agitation and against a minimum friction head. At Nauheim the low supersaturation is obtained because the springs flow direct to the tubs, with a heaving effervescence and pulsating movement that destroy the supersaturation by agitation. At the other spas in Europe they control the springs, while at Nauheim the springs are in control.

IN 1,000 CUBIC CENTIMETERS OF WATER

Sample taken	Entire carbonic acid	Active CO_2 , either free or half combined	CO_2 , completely free	Temperature
Spring	4.333 gm.	3.586 gm. 2,042 cc.	2.839 gm. 1,617 cc.	33.1 C.
Effervescent bath	2.7147 gm.	1.9677 gm. 1,116 cc.	1.2207 gm. 693 cc.	31.9 C.
Thermal effervescent bath	2.4661 gm.	1.7191 gm. 970 cc.	0.9721 gm. 549 cc.	30.6 C.
Thermal bath	?	?	0.4608 gm. 260 cc.	29.6 C.

In order that physicians may compare these results with those obtained from the Saratoga baths, I will record the principal features of these in data of another form. From the above table it is seen that the strongest bath, the effervescent bath, contains 693 cc. of free gas in 1,000 cc., or one liter, of water. Now, one liter of this salt water

At Saratoga the largest supersaturation has been obtained because a plant was constructed wherein the water moves slowly through a hermetically sealed system, under high pressure. A pump is placed in the well at a depth where the pressure equals fifty pounds per square inch, and the water is moved from this point slowly, under

constant pressure, and with a minimum of friction. As the gas content varies directly as the pressure, a maximum saturation is obtained, and it is under absolute control at all times. Another advantage at Saratoga is that the water is taken to the tubs cold, and heated in the tubs in about one and one-half minutes. This method liberates some of the gas in solution, as well as some of the partially fixed gas, for the rise in temperature breaks down some of the bicarbonates. Consequently the supersaturation, the gas in solution, and the partially fixed gas are available for bathing purposes. At Nauheim the supersaturation only is available for bathing, for these are thermal springs, and baths are given at the temperature of the water. They are unfortunate in that they cannot use the gas held in the water at atmospheric pressure and that partially bound in the bicarbonates, as we do at Saratoga.

In a small pamphlet published by the grand ducal administration at Nauheim I find the following statement: "Most European spas have cold springs, and are obliged to heat the waters for the baths and to pump it as well. With such disadvantages it is not likely that they can give baths of the same therapeutic value as those of the naturally thermal effervescent springs at Nauheim." Strangely enough, these are the very reasons why better baths can be given at other places than at Nauheim.

The following table shows just how much gas is lost between the spring and the tub, and this loss is entirely due to the method of piping the water direct from the spring to the tub without any control, such as would be exerted by a pressure system, governed at all times by automatic pumps:

IN 1,000 CUBIC CENTIMETERS OF WATER

Tests	Active CO ₂ , absolutely free and part combined	CO ₂ , which is absolutely free	Temperature
At the overflow pipe of the spring.....	3.6212 gm. 2051 cc.	2.8733 gm. 1636 cc.	32.98 C.
As the water comes into the tub.....	2.3029 gm. 1307 cc.	1.5560 gm. 882 cc.	31.70 C.
In the tub when filled.....	1.9166 gm. 1088 cc.	1.1686 gm. 690 cc.	31.70 C.
After the bath has been taken.....	1.8163 gm. 1031 cc.	1.0683 gm. 606 cc.	31.60 C.

When the tub is filled, 690 cc. of gas are available in every 1,000 cc. of water, which gives a supersaturation of 23.7 percent. In other words, they have lost 66 percent of the gas at the spring and 57 percent of the absolutely free gas, which is the only gas available for bathing purposes. In the system as used at Saratoga we lose only 5 percent of the supersaturation.

The physicians at Nauheim claim that the most important medical agencies, aside from CO₂ gas, are sodium chloride and calcium chloride. It is certain from the given analyses that the three springs are high in these two salts. Ninety percent of all the other physicians interviewed in

Europe at the other spas say that the efficiency of the Nauheim bath system depends on the CO₂ gas alone and not on the above-named salts, and the results obtained at Saratoga, with waters higher in gas, but lower in salts, than these, were so uniformly good that I am convinced that the cures obtained with this system are due to the large gas content in the water.

Dr. Ferris says: "The chlorides dissolved in the water simply serve to cause a primary excitation of the skin, resulting in the dilatation of the capillaries and the smallest terminal arterioles. The carbonic acid gas exerts a profoundly stimulating effect on the skin and on the sensory nerves, through these reaching not only the nerve centers, but also by radiation and reflex action the entire nervous system. On the heart and circulation these effervescent baths have a special action. The baths increase the capacity of the cutaneous vessels and distribute a large quantity of blood over the entire skin surface, thus lessening the demands made on the cardiac muscle. The CO₂ accomplishes by far the major part of the results obtained, regardless of the amount of chlorides in the water. It is the principal agent."

Over 10,000 baths were given last summer with our natural mineral water, enough to serve as a good criterion from which to draw conclusions from our results here at Saratoga Springs. Additional salts can, however, always be added to a carbonated bath if desired by the physician. Care should be taken to put the salts in as a brine and not as a crystal, as the crystal salts draw out some of the gas.

In the preparation of baths for the Nauheim system by the use of artificial salts, it has long

been the desire to obtain a bath which would retain its gas in order to promote higher efficiency. In order to accomplish this result manufacturers of artificial baths have tried various methods. Some first dissolve a portion of the salts in the water, to be followed by the addition of a liquid after the patient has entered the tub. The addition of this liquid is the means of liberating the gas required for the bath, and the liquid is always a strong acid. Others furnish two packages of salts, one of which is dissolved in the tub and contains the acid; the other package is divided into three parts, each part contained in a small bag to be hung over the side of the tub at intervals

along its length. The idea in this is to distribute the production of gas over the various parts of the tub and to prolong as much as possible the liberation of the gas.

No matter how they are administered, the different preparations in use all depend on the same

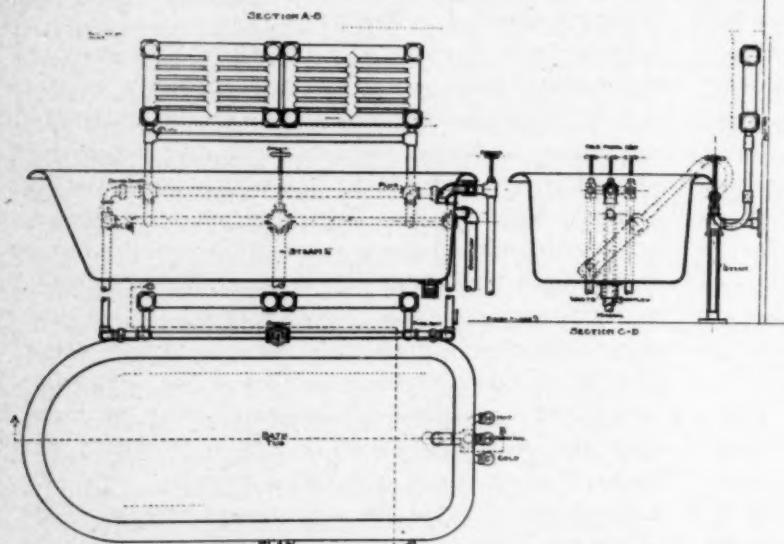


Fig. 1. Bath tub, showing water and steam connections; also hinged copper coil, which is swung down into the mineral water when drawn in the tub and heats the bath in one and one-half minutes without admixture of fresh hot water. This coil reclines in protective cabinet against the wall until the tub is full and steam is turned on, and acts as radiator for bath room in cold weather.

principle—the breaking down of some bicarbonate or carbonate salt with an acid; and they all give the same results—a bath in which the carbon dioxide is liberated rapidly and in large bubbles, the production of which soon ceases. But this is not the worst feature of such baths. The practice of exposing the body to an acid bath, a condition which is certain to exist in this type of treatment except at the moment when the effervescence ceases, is indeed a dangerous one, for it produces a superficial burn. The following are the results of experiments made, using one of the very popular artificial bath combinations and preparing it according to directions on the label:

There was formed by the interaction of the compounds, 182.1 liters of CO_2 gas, of which 151.4 liters remained in solution because of atmospheric pressure, leaving only 30.7 liters as free gas. This amount of free gas represents that which goes off in the form of bubbles and that which is present as supersaturation. There is a total of 16.3 percent of gas that is actually available for the beneficial effects of the bath, of which only 5 percent to 7 percent is supersaturation. The final reaction of the bath, after effervescence had ceased, was acid, the strength of the solution being equivalent to 1/10 normal solution. It can

readily be seen that this bath is not efficient, and, furthermore, that it is not to be desired because of its acid condition.

The label directs its use as follows: "Prepare the bath by using tepid water, 92 to 94 degrees F. Put the powder, disturbing the water as little as possible, in the middle of the tub, step in the bath and pour the contents of the bottle slowly, at arm's length, over as much of the surface of the water as possible. This bottle contains a concentrated acid, and the patient is likely to get a very strong acid bath at some time during the manipulation in the tub."

There is no way of obtaining a solution that has the required supersaturation of gas—25 percent—by dissolving salts in a bath tub and liberating the gas with an acid. Bath water, in order to show such a high supersaturation of gas, and gas that is in a finely divided state, must be subjected to pressure. I have designed an apparatus for this purpose, by the use of which a carbon dioxide bath, containing the salts required by the Nauheim system, can be prepared in ten minutes in any home, and one that will show a supersaturation of 36 percent after standing half an hour. The use of acid is avoided and the cost is reduced to about 25 cents per bath. Actual tests made after drawing the

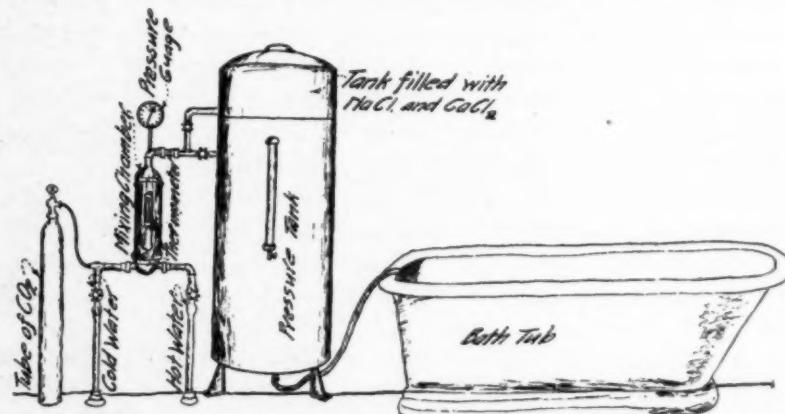


Fig. 2. Apparatus designed to administer artificial Nauheim baths, containing sodium chloride and calcium chloride. Gas and water are led through a mixing chamber into a pressure tank, where they are held for a few minutes until a supersaturation is secured. The mixture is then allowed to flow into the bath tub, and resembles very closely the Nauheim bath and is of equal strength.

bath show supersaturation from 46 percent to 49 percent. These supersaturations are practically equivalent to any obtained at Saratoga and exceed any obtained anywhere in Europe.

It takes extensive means, time, and money to recover the precious treasure of health if it has once been lost, and it is a pity that so few find ideal nursing.—M. Rubner.

SOME ADMINISTRATIVE PROBLEMS IN HOSPITAL BUYING

Local Tradespeople Must Meet Competition Fairly or Be Ignored—Ulterior Motives Must Not Be Allowed to Interfere—Some Examples of Petty Grafting of Local Interests

By CORNELIUS S. LODER, HOSPITAL EFFICIENCY SPECIALIST, OF CORNELIUS S. LODER AND ASSOCIATES, NEW YORK.

A GENERAL hospital of about seventy-bed capacity, located in a manufacturing city of 21,000 population, in the middle west, experienced difficulty in meeting its annual deficit. A hospital specialist was retained, who showed them, on their budget of \$36,000, that savings of about \$8,000 could be effected, especially if more careful planning and foresight were exercised in the purchasing of food supplies. His recommendations included plans for increasing earnings, contributions and donations, but those matters are not for discussion in this article. The end sought was operating the entire institution on the most economical, effective basis through the use of all modern methods.

A HEARTILY ENDORSED PLAN

The entire plan for betterment was heartily endorsed by the board of government, the superintendent and the housekeeper, and authority was granted the specialist to proceed forthwith installing his plans. An announcement was sent to all subscribers of the hospital, and a statement was prepared and handed to the editors of the three local papers. No hindrance nor any objection was anticipated. Those who had carried the burdens of the institution for many years renewed their interest and courage; in fact, the almost impossible task of paying bills had caused those in charge of the institution to consider seriously the discontinuance of the hospital or the abridgment of its charitable work in the community. The new method was successfully inaugurated, for all committees worked together in cheerful accord and earnestness. A ten-day test on the new system showed that the economies in food supplies alone would amount to nearly \$5,000. The better spirit manifested throughout the hospital and in the town was commented upon favorably by many of the citizens.

SELFISH INTERFERENCE

When the plan had been in operation about one month, the branch office of a large packing house located in an adjacent city telephoned the hospital superintendent that he, as branch manager, would have to decline accepting further orders. He refused to give any reasons, but admitted the account had been satisfactory both as to volume of business and as to payments.

A few days later the salesman of the wholesale grocery house, with whom the hospital had entered into satisfactory arrangements, called upon the superintendent and said that he had received instructions from the president of his company to refrain from further soliciting efforts with the institution and to decline taking further orders. The salesman said that everything had been satisfactory, that he did not know the reason for this order, and he especially regretted it as a personal loss in sales commissions.

Within one week, two other concerns had advised of their wish not to sell the hospital. But through a concern from whom the hospital had purchased goods under the new plan, the management learned that the local merchants, some of whom had previously sold the institution, had met and organized secretly, and then used questionable methods to counteract the loss of the hospital trade which they had considered their legitimate prey. It seems in the case of the local butchers that they had threatened to boycott the packing house if it continued selling this hospital. The packer had informed them that his company was selling hospitals, other institutions, and large private schools all through the country, and that the amount of the individual accounts equaled or exceeded those of the local butchers to whom they had sold on the same terms. He showed them the general custom of the trade in this respect and also that his company did not sell the consumer direct. But in preference to spending time on the case, the packer simply decided to "cut out" the hospital. Some time later this manager verified the above statement.

The retail grocers had approached the wholesale grocery concern on another plan. It seems they had made their purchases previously through different wholesale grocery concerns, but when this hospital situation came along they agreed to concentrate their trade on the wholesale grocery concern which was selling the hospital. The wholesale house was approached and assured that if they ceased filling the hospital needs they, the retail grocers, would buy exclusively through them, and guaranteed the sales reaching a minimum amount monthly, the arrangement to continue indefinitely, or so long as the hospital account was refused. Then these retail grocers waited on some of the wholesale in their line, in-

THE MODERN HOSPITAL

cluding those of whom they had formerly bought their supplies, but to whom no notice was given of a change in their trade. Their approach to these concerns was on the plan of obtaining written agreements not to sell the hospital. Thus, the retail grocers of the community expected to control the hospital situation.

EFFICIENCY IMPAIRED

You may ask, what did the hospital people do? Answer—in accordance with their experience and largely in accord with other institutions under similar circumstances, they followed the line of least resistance. Of course they felt the situation very keenly, they were greatly disturbed and disappointed, for they had had time to contrast the old plan and the old spirit of interest and trouble with the new plan and its incentive for better and bigger work. But the members of the governing board were all voluntary workers, and although interested in the hospital, each was busy in his or her affairs, including their outside interests. The employed executive of the hospital could do nothing unless directed and backed by the advisory counsel, with the result that the entire institution slid back into its old and indifferent way of doing things. In other words, they "let go" on the business end, so that the lack of interest in those higher up was felt down the entire line.

The tradesmen had won their fight and they thought that they had done a very smart thing. But the winners removed the incentive for work from those in charge of the hospital and thus largely lessened the desire for accomplishment, betterment and advancement. The caliber and type of these men were far below what is usually found in a town, and this may have had considerable to do with the methods employed.

A BATTLE WON, BUT LOST

The tradesmen won "hands down," and by only a little concerted effort on their part, but what did they win? The continuance and permanency of the hospital is not assured, and neither are these tradesmen sure of collecting their bills promptly or of being able to receive the patronage of the hospital permanently. The value of a sale is based on its profits, so it is a question if they have profited themselves especially when we must all take into account the value and advantage of a modern hospital in a community. It is a need equal to that of the public school, and real estate men include the hospital in their arguments to prospective buyers. However healthful a place, a hospital is needed. The best evidence of this is shown by their rapid growth in both number and size.

These tradesmen may have neglected to include in their calculations their own need or that of their employees for a hospital; they may have been helped themselves in the past; but greater than all of the above was their own obligation to the community in which they were located, their obligation to suffering mankind, and these factors cannot be equaled by mere temporary monetary considerations, so that these tradesmen won in dollars and lost in manhood. Thus, the loss is far greater than the gain.

I know that many hospitals have had interesting experiences with their retail trade and that they could furnish considerable information. I hope they will tell their story in some future issue of *THE MODERN HOSPITAL*.

Some other experiences occur to me through my hospital associations.

MORE BLIND SELFISHNESS

The governing board of a hospital, on the plea of its superintendent, authorized the purchase of a large standing scale. Its position when delivered was to be near the entrance door for the food supplies, and the receiving clerk was to be instructed to weigh all articles that required such attention. A report was to be made whenever the amount differed from the bill either in excess or shortage. The hospital bought some of its supplies of the retail dealers, a few of whose wives were members of different hospital committees. The retail trade raised a cry about having their measurements questioned, and through their influence the institution was obliged to discontinue the use of the scales on local trade orders.

In another hospital the coal was purchased of local coal dealers, but when larger storage facilities were secured, an arrangement was made to purchase coal in carload lots at the wholesale price on the long ton basis. (Long ton 2,240 lbs., short ton 2,000 lbs., 12 per cent increase in quantity on the long ton.) A local truckman agreed to deliver the coal as soon as the car was reported, at 40c per load. His charge was to be based on the short ton price and figured in accordance with the amount charged by the wholesale dealer, that was in turn to conform with the quantity shown on the car. The local coal dealers discussed the matter among themselves over the telephone and then forced the truckman to refuse to handle any more of the coal on pain of losing his other business. They agreed to refuse to handle the coal unless purchased of one of their number. This resulted in the hospital being obliged to pay from 75 cents to \$1.25 per ton more than it could secure the coal for under the car quantity plan.

Here is another example of loss to the hospital

on a little different line. The treasurer of the hospital had political ambitions and instructed the superintendent to purchase his supplies of the retail trade within the county, and he even went so far as to designate those to whom preference was to be given. This resulted in increasing the cost of such supplies from 25 per cent to 40 per cent and meant an additional operating cost to the hospital of many thousands of dollars during the year. On one item the cost advanced from 14 cents to 23 cents per pound. These transactions were used indirectly by this treasurer as an argument for support, and contributions to his cause, through the tradesmen, some of whom were active in the local counsels of the political party with which the treasurer was affiliated.

THE DIRECT APPEAL AND THE RESPONSE

In great contrast to all of the above experiences, let me tell you of one within 100 miles of New York City. The efficiency engineer had evolved a method for the better operation of the hospital, and he was permitted by the governing board to call a meeting of the local tradespeople irrespective of their having sold the hospital or being in a business in which the hospital had needs. The announcement did not reveal anything as to the object of the meeting and no effort was made to work up sentiment or to secure interest. The only further step was to make follow-up calls on the telephone to insure the attendance of each one to whom an invitation had been sent. All came, but some out of curiosity. Then in behalf of the hospital the engineer presented the entire plan of working the hospital in tabloid form. His remarks were largely informative and in the nature of an appeal for more interest on a broader basis; then he referred to the hospital's obligations to the community, and asked for a spirit of good will and for hearty cooperation. He included statements showing that the manufacturers and wholesale trade were accustomed to sell directly to hospitals and that when they did not obtain the business, it was due to consideration for, or interest in, the local retail trade. His statements regarding cost of operating, between wholesale and retail prices, were startling, all of which were based on present day quotations in all lines of trade. He presented the quantity used in the hospital of each article illustrated, and invited those present to show an error either in individual items, or in the gross, which they were unable to do. His reference to local charities and those who contributed to them was then a thing that the retail trade had never considered seriously, but his strongest statements concerned the many persons of limited means who had been

helped back to health and success through the hospital. In fact, his appeal for support was so well received that every person present joined with him heartily and enthusiastically in his wish to buy wherever the goods could be secured on the best terms, and finally some of the tradesmen present through a voluntary unsolicited appeal by one of their number, made contributions from the stock in their own stores to the hospital.

Now you ask what was the result of this splendid spirit? First, the local papers gave considerable publicity to the action of the local tradesmen, with the result that customers of these stores thanked their tradesmen warmly and sincerely. This engendered generally a better spirit of cooperation and understanding between those of different interests and later resulted in a series of "buy at home" days that actually increased the sales of the trade above anything that they could have secured in the way of net profits from the business of the local hospital. Then later, the local board of trade took up the interest of the local tradesmen by urging the local people to support more largely and generously their own local tradespeople. The tradesmen themselves went into the question of price and reduced it on articles that had been sold at a prohibitive figure, also established special bargain days, also "a dollar day plan" and, lastly, all united in issuing an illustrated booklet intended to counteract the mail-order proposition.

THE SPECIALIST A HARMONIZER

This plan would seem to be feasible or adaptable everywhere, except possibly in a few of the larger cities, where purchasing conditions are not the same as concerning the retail trade. The plan, however, must be directed tactfully and skillfully, and best results will be obtained through the assistance of an outside man, who is competent to prepare and submit facts and figures in convincing manner.

Possibly every small community hospital has had, or is now having, experiences similar to the above. It would seem that the cause of humanity is best advanced through the hospital that is conducted on an economical and efficient basis and by interested and competent persons. Good results, however, cannot be secured if excessive cost is permitted in the purchasing of the supplies. The local trade may seem to think they have claims for local support from the hospital and insist on securing it, but they must know that the management is criticized if the operating cost is high, and that such people are not going to continue receiving criticism of the public when they know a better showing is possible.

It would seem as though the hospital should be allowed to conduct its affairs with "hands off" on the part of the retail trade and others who have special friends on any of the boards of the institution. There is a many-sided argument to this entire question. Each community institution must adjust itself to its own local conditions, but these views may give suggestion for improvement in the relations between the hospital workers, the operators, the contributing public, and the retail trade.

When purchases are made locally, the supplies are usually ordered daily, and the goods so ordered are delivered the same day. This is an advantage

in keeping in closer touch with the supplies on hand, but requires also more constant time and attention. Buying at wholesale is usually done by the week or month for stated periods and it usually results in a more systematic method for checking supplies because of the larger quantity that is ordered at one time. Under either plan, the local trade usually secures the fill-in emergency orders.

The quantity of the supplies and their freshness, except in case of green vegetables, is not always the principal consideration, for it is regrettable that often price and quantity prevail as against quality.

NEW ISOLATION UNIT, HURLEY HOSPITAL, FLINT, MICHIGAN

Prevention of Cross Infections to Be Secured by Care in Technic Rather Than by Architectural Arrangement—Facilities for Maintaining Cleanliness the Chief Features —Some of the Details of Construction

BY HERBERT E. DAVIS, ARCHITECT, OF DAVIS, MCGRATH & KISSLING, NEW YORK CITY, AND
MISS ANNA M. SCHILL, SUPERINTENDENT

THE ARCHITECTURE

BY MR. DAVIS

THE Isolation Building of the Hurley Hospital, plans of which are shown herewith, presents a solution of the problem for the care of contagious diseases that is especially adapted to cities of the smaller class.

The city of Flint has a population of about 50,000, and like many other cities of its size has up to the present time taken care of its contagious diseases in the much abhorred "pest house," located as far as possible from the center of population and avoided by all.

The rapid growth of Flint as an industrial center has made a more adequate and scientific care of this class of diseases an absolute necessity, and the present plans are the outcome of a thorough investigation of the problem.

The success which has attended the adoption of the theory of "contact infection," as applied at the Providence City Hospital since 1910, at the Contagious Hospital of the University of Michigan since 1913, and in certain hospitals of England, France and Germany for longer periods, together with its many economic advantages, led to its application for this building.

The theory to be applied is a very simple one, namely, that all infection is only the result of contact and is not transmissible through the air; hence infection can only be avoided by strict medical asepsis.

This means, first, that a single building located in the general hospital group with adequate light and ventilation will answer the purpose for all

diseases. It is, therefore, possible to have it connected by tunnel with the light, heat, and water mains, laundry, kitchen, and food supplies of the main hospital, with the consequent great economic advantages in first cost, administration and maintenance.

It means, in the second place, however, that every possible convenience, such as washing facilities and sterilizers of various kinds, must be provided in the building to avoid "contact infection."

In general, the plan adopted is similar to that used in Ann Arbor, which consists of a one and a half story building with basement, the first story containing a central corridor with isolation rooms opening into it on either side, each room to accommodate two beds, the second story containing accommodations for the resident nurses and maid, and the basement containing sterilizer room, store room for clothing, and morgue.

Each isolation room is provided with a lavatory with knee-action valves and a water closet with a separate hot water supply through a gooseneck valve for rinsing purposes. This equipment will avoid the necessity for the patient leaving the room at any time and will save the nurses many steps by providing a convenient hopper within the room for the emptying of the bed-pan and other utensils.

The patient will be received from the outside directly into the room in which he will remain and will leave it only when dismissed to pass through the corridor to the exit infected dressing room, thence to the bath room and exit clean dressing room, shown at the front of the building.

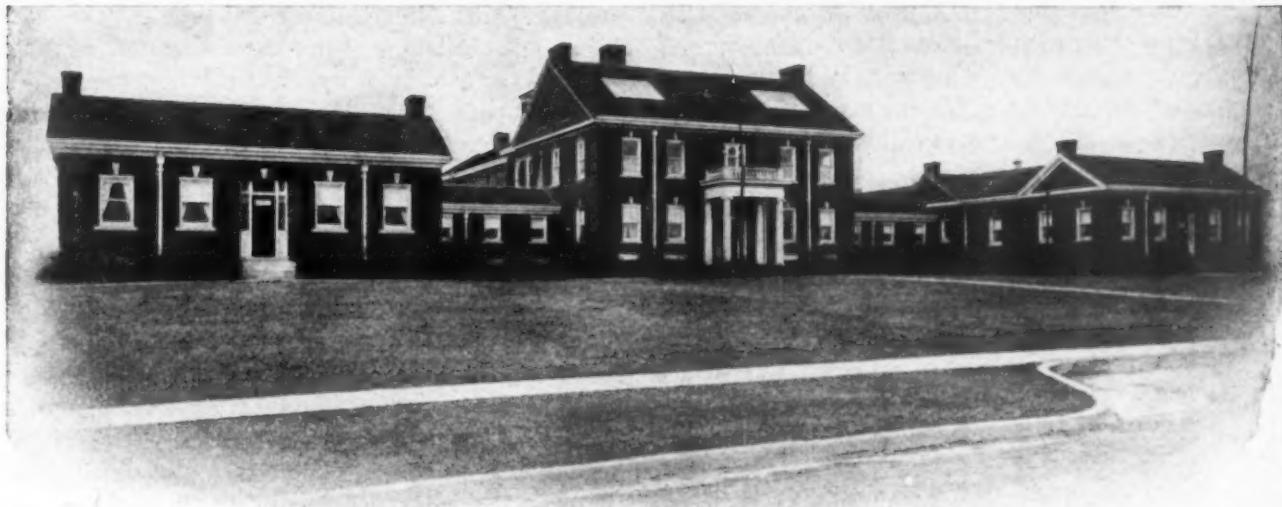


Fig. 1. Hurley Hospital. Front view.

The entrance for doctors and nurses is at the opposite side of the building, where a space is provided for hanging the doctor's outer street clothes and for putting on a clean hospital robe if he intends to touch or handle a patient. The nurses on coming to the building may go directly up to their private quarters, or if coming on duty may cross the corridor to the infected dressing room, in which each is provided with two lockers, one for their infected robe and one for their clean one. Adjacent to the nurses' entrance to the central corridor is the nurses' station, at which the signal and annunciator are located.

Food will be delivered either by way of the tunnel to the dumbwaiter in the basement or from the outside by way of the veranda entrance to the kitchen.

Linen will be received from the laundry directly into the linen room, from the outside by way of the veranda. Soiled linen will be deposited through the infected linen chute into the infected sterilizer room below, from which it will pass through the linen sterilizer to the laundry by way of the tunnel.

The kitchen is equipped with a dish sterilizer in which all dishes used by a patient will be sterilized. It is also equipped with a steam table, plate warmer, refrigerator, etc.

The utility room is provided with a combination utensil bed-pan sterilizer, an instrument sterilizer and a bed-pan specimen closet with an outside vent.

Mattresses will be carried from the isolation rooms around the outside of the building to the basement entrance to the infected sterilizer room, and after passing through the sterilizer will be hung up ready for future use.

Patients' clothing will also be treated in this

way and stored in bags hung from the ceiling in the store room for that purpose, and when required will be delivered at the patients' clean entrance dressing room from the outside.

The staircase provided from basement to the first story corridor is for emergency use only.

The plan is so arranged that any number of additional rooms may be added when needed without requiring additional service rooms.

The second story is arranged for the accommodation of four nurses and one housemaid, with a bath room, kitchen and a large room for the nurses' sitting and dining room.



Fig. 2. Hurley Hospital. Isolation unit.

The exterior of the building is constructed of brick in general conformity with the other parts of the group. The roof is of slate and all sheet metal work of copper. The first floor is of fire-proof construction, with a six-inch terrazzo sanitary base and floor finish throughout. All angles in plaster work on walls and ceilings are rounded, and the walls of bath room and kitchen tiled seven feet high with white glazed tile. All plaster walls, ceilings and woodwork throughout this floor are finished with enamel paint. Each isolation room has two radiators, so that one or both may be used as required. The radiators are hung on the walls

eight inches above the floor. Special concealed transom lifts are provided for all transoms, and the side sash in all isolation rooms are fitted with an approved type of ventilator. The water closets in each room are ventilated from ducts extending above the roof, fitted with special ventilator caps. All outside door and window openings are provided with screens and weather strips. Each floor

tagion as are those of any hospital. The same nurses, observing aseptic precautions, care for all patients.

The success or failure of the hospital and its proposed plan of operation will depend largely upon how the nursing staff carries out the principles of medical asepsis. The nurses will be in charge of a graduate who has perfected herself in the technic of this special department. Before the hospital is opened, the nursing staff will be thoroughly drilled in the principles of medical asepsis. Just as in the surgical operating room, they will be taught that the conveyance of infectious material to those free from disease may and probably will result in infection. They will be told that if they contract a contagious disease while in the contagious disease service, it will be their own or their associates' fault. Just as it is impossible for a well trained nurse to brush back her hair in the operating room or touch articles not surgically clean, so it will become impossible for the nurse drilled in medical asepsis, who has

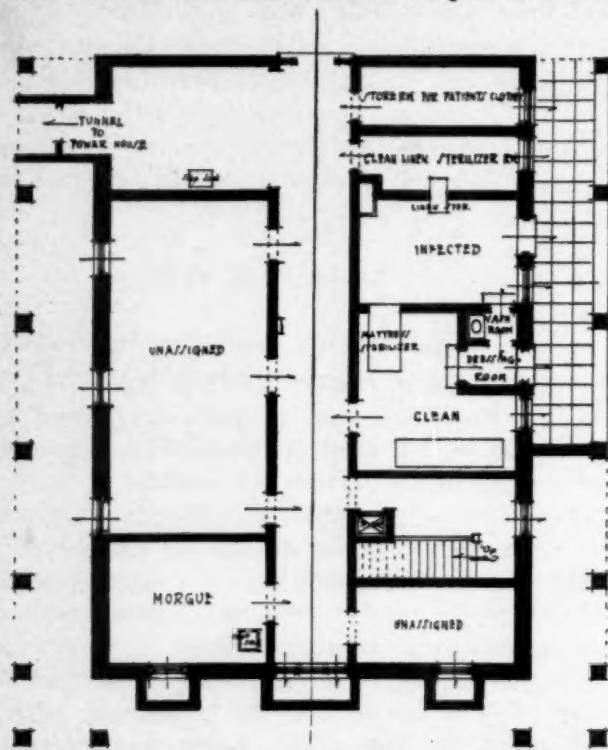


Fig. 3. Hurley Hospital. Isolation unit. Basement plan

is equipped with a fire line with hose and reel for fire protection.

In developing the plans the architects are pleased to acknowledge their indebtedness to Miss Anna M. Schill, Superintendent of the Hurley Hospital; Dr. J. G. R. Manwaring, of Flint, and to Dr. S. S. Goldwater, of New York, for their co-operation and advice; also to the published reports of Dr. Dennett L. Richardson, of the Providence City Hospital, and of Dr. Reuben Peterson, medical director of the University of Michigan.

THE TECHNIC OF OPERATION BY MISS SCHILL

In the new isolation building described by Mr. Herbert E. Davis it is proposed to adopt practically the same technic as that in use at the Providence City Hospital and at the new contagious hospital at the University of Michigan. Patients suffering from different contagious diseases will be admitted. The technic of this building is based upon the principles of aseptic nursing. The infection is confined to the rooms occupied by the patients, while the utility rooms and the central corridors are considered to be as free from con-

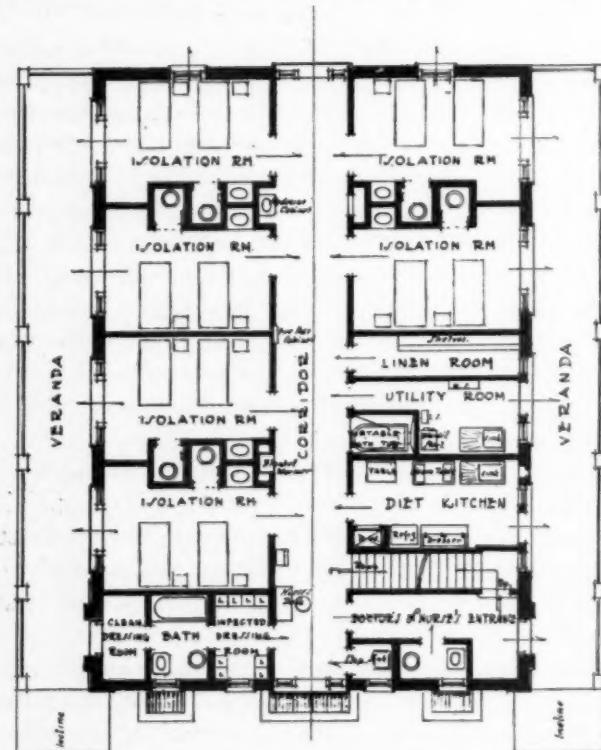


Fig. 4. Hurley Hospital. Isolation unit. First floor plan.

cared for a contagious disease, to touch anything until her hands have been thoroughly sterilized.

The nurse on entering a room to care for her patient will put on a gown, in order to avoid accidental contamination of her clothing. After attending to her patient, she will remove her gown and thoroughly sterilize her hands and arms in running water and liquid soap obtained from a retainer worked by a knee pressure, so that the infected hands do not need to touch the recepta-

cle. After immersing the hands and arms in some mild but effective antiseptic solution, the nurse can leave the room confident that she will not carry contagion to another patient. The main corridor is free from infection and kept so.

All dishes and other utensils used in the patients' rooms are immediately sterilized by steam. Patients' night clothing and bedding are placed in canvas receptacles and carried to the sterilizing and fumigating plant, where they are sterilized, receptacles and all.

Extra precautions will be required of the nurses before they leave the building to retire to their rooms. In order to avoid a great danger of infection, they will be prohibited from eating while on duty. They will be served in their own dining

wheeled, each patient is assured at all times of abundant open-air treatment. Such a porch does away with the necessity of a patients' receiving and examining room, since each patient can be admitted directly to his room by way of this porch.

When a room is emptied it will not be disinfected by fumigation. No part of the isolation building at Providence or at the University of Michigan has ever been fumigated, and the good results speak for themselves. If there be nothing to the theory that infection is air-borne, then the air of the room in which the contagious patient has been is as free from organisms as is that of any other room. To make the room free from the possibility of infecting another patient who may occupy it, the bedding, the mattress, the bed, the walls as far as the patient can reach, in fact, everything which the patient could have touched, will be disinfected. It has been shown that this can be done very thoroughly by scrubbing with soap and water. The room will be well aired before it is occupied, just as we would thoroughly air a room recently occupied by a patient with a non-contagious disease.

The furniture of the rooms is to be of the simplest. It will consist of two iron beds, two bedside stands, two enameled chairs, shelf for towels and soap retainer worked by knee pressure, brackets for wash basins holding solution, two small shelves for toilet articles and wall hooks for nurses' gowns.

The general bath room was intentionally omitted, since the common use of such a room was impossible with men and women patients on the same floor. Even with two bath rooms, patients with different contagious diseases could hardly use the same toilets without great danger of infection. Each room is furnished with a toilet and lavatory, and when bedside bathing is necessary it will be done by means of a portable tub, which will be emptied and made aseptic after each use.

Whether or not we shall have cross-infection remains to be seen and can be better told after the plan has been in operation at least six months. This information we shall be very glad to give to readers of *THE MODERN HOSPITAL* and others interested in the care and treatment of contagious disease patients in a hospital.

I am pleased to acknowledge my indebtedness to Dr. Reuben Peterson, Medical Director University of Michigan Hospital, who has outlined and is carrying out the proposed plan of operation in the new contagious disease hospital in Ann Arbor.

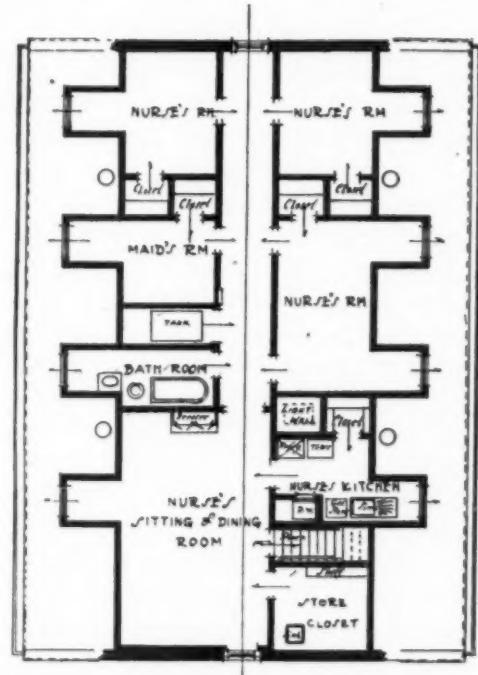


Fig. 5. Hurley Hospital. Isolation unit. Second floor plan.

room on their own dishes, which have been boiled, and with food that has not come in contact with any contagion.

Because of the possibility of a slip in the technic, and the acquiring of a contagious disease, illness of any kind among the nurses on duty will be carefully observed, and if necessary the nurse will be isolated for observation.

The contagious course will not be made compulsory for any pupil nurse, but it is hoped the pupil will feel that if she carefully carries out a certain technic there is very slight danger of contracting a contagious disease, and she will be loath to forego such valuable experience.

One of the most valuable features of the hospital is the porch, which can be made serviceable in many ways. Since each room opens upon the porch by a door through which a bed can be

The Charité Hospital in Berlin was founded in 1710 by Frederick I., and was greatly enlarged by Frederick the Great.

MANAGEMENT OF THE FOOD SUPPLY OF THE HOSPITAL¹

Intimate Cooperation Between the Administration, the Staff, and the Nurse Is Necessary to Secure Good Food and to Serve It Attractively—Some Examples of Wasteful Methods

BY ELLIOTT P. JOSLIN, M. D., BOSTON

THE food supply of a hospital constitutes such a large proportion, approximately one-fourth, of the total expenditure that the trustees of the hospital might well call this to the attention of the medical and nursing staffs in detail, and thus arouse their interest not only in the improvement in the distribution of the food, but in the prevention of its waste. I do not believe there is a single member of the staff who would challenge the statement that a considerable quantity of the patient's food at the hospital was wasted; even if only one or two cents a day per patient were saved, it would amount to a very considerable sum. The salary of a special dietitian devoting her entire time to the prevention of the waste of the food supply, from all its aspects, would many times be covered by the amount of capital saved.

THE DIETITIAN

The dietitian in many of the hospitals visited in New York, Chicago, Rochester (Minn.), Ann Arbor, Pittsburgh, Baltimore, and Boston played an unimportant rôle. It was very noticeable, however, that the more modern the hospital and the more up to date its management, the greater the power of the dietitian. In the poorer hospitals it seemed as if her entire time was taken up in supervising the preparation of desserts, and such desserts as were for private patients. To such lengths did this plan go in one hospital which I visited that on one day I found there were ninety-six different kinds of food prepared or served from the diet kitchen—for example, two kinds of broth, ten preparations of meat and fish, twenty-two vegetables, one gruel, twenty-one kinds or preparations of fruit, eighteen varieties of salad, and twelve varieties of desserts. Few hotels in the country could equal such a menu, and be it understood that these were prepared in addition to the routine diets of the private patients, nurses, staff, and the help. The work of the dietitian in this hospital had nothing to do with the routine diet of the nurses, staff, and servants, and yet their food unquestionably must have amounted to 90 percent of the total food served.

This is surely not what it should be. The dietitian of a hospital ought to be so much better

trained in a knowledge of the food supply and its management than anyone else in the institution, that this individual should be the most important factor in the management of the food supply. The time of a trained dietitian should be spent on essentials and not on details. There is quite enough, however, to occupy the attention of a dietitian in the hospital without employing her services in the purchase of supplies.

THE STAFF

The staff can be of great service in conserving the food supply of the hospital. The physicians and surgeons should feel that the responsibility for a fourth of the total expenditure of the hospital rests on them; they should be encouraged to point out waste and report extravagance and carelessness. I feel strongly that if this aspect of the situation had been called to my attention while I was a member of the staff of a certain large hospital, I could have saved that hospital a considerable sum. Frankly, I believe most of the members of the staff, like myself, either thought little about the waste or felt that, if they did speak of it, criticisms and suggestions would not be welcome. This is a very wrong point of view. The services of the staff should be at the disposal of the hospital not only for the care of the patients, but for the efficient management of the institution. By this means a noticeable reduction in the expenses could surely be made, and I am confident that the trustees would only too gladly recognize such help on the part of the staff by utilizing a portion of the funds thus saved for a larger laboratory appropriation and for progressive, scientific work.

THE NURSES

The nurses have more power to prevent waste of food in hospitals than the administration or medical staff. So much depends on them that they should be given systematic instruction during their first month of training on this very point. This instruction should not only be didactic, but practical as well. A specially trained nurse should be employed for this purpose, and she should have had opportunities to study methods employed in other institutions for the instruction of nurses in this regard. It is almost as valuable to see the mistakes which are made in other institutions as to see the points in which they excel.

¹This paper is a report recently submitted to a committee of the trustees and staff of a hospital appointed to consider plans for retrenchment and for future development.

INSPECTION OF GARBAGE

The inspection of the garbage is undoubtedly one of the best methods to employ in the prevention of waste. This should be so detailed that the head nurse of each ward in the hospital should feel its effect. At the weekly meeting of the head nurses with their superintendent in one of the best conducted hospitals which I visited, the inspection of garbage was reported, and this head nurse held up to commendation, and that head nurse exposed to reproof because of the inspector's report. The assistant administrative superintendent of the institution told me that this proceeding was of great help in preventing waste. Opinions differed somewhat as to the best sort of garbage inspection, whether by examination of the residue of each ward, spread out on a garbage table, its estimation by weight, or a combination of both methods. Garbage inspection actually requires little time. I was present at the garbage inspection of a hospital which fed an aggregate of approximately one thousand patients, nurses, and staff, and the time occupied was less than one-half hour. The garbage was all brought to a room in the basement, two men emptied the can from each ward to a sorting table and then pushed it into a reception can at the lower end of the table, and this was carried off by a third man. It was perfectly obvious that some wards were far more wasteful than others. Not only this, but it was also obvious where the waste occurred. It was evident that much more bread was lost in some wards than in others simply because it had been poorly toasted. On that particular morning it was plain also that one-third of the meat served to the help in the form of sausages was wasted. The cause was not so clear, but apparently either the sausages were disliked by the help, and consequently a different kind of food might have been more economically served them, or the variety of sausages was too large, and more were taken by the individual than he needed. At any rate, the waste of that particular food above all else was seen, and a definite problem was thus presented for solution.

SIMPLIFICATION OF DIETS

The simplification of the diet system of a hospital not only favors economy in the purchase of food, but efficiency in service. In one large hospital devoted chiefly to surgical cases there were but three standard diets. These were represented by three colors over the patient's bed. It was a very easy matter in this hospital to order a diet for a patient and to serve it.

CLASSIFICATION OF PATIENTS

The superintendent's office can contribute greatly

to this end by a suitable grouping of cases. To some extent this is already done, for medical and surgical cases are already separated. The surgical patients require more food, but this may be of a cheaper variety, and the surgical diets are proverbially simple.

Another broad classification is the division of patients into bed cases, who are served individually, and convalescents, who are allowed to eat at a common table either in the ward or in an adjoining small dining room. This plan is adopted in many of the larger institutions. One recently built hospital had arranged for dining rooms off the wards for this special purpose. Nowhere did I learn of disadvantages in this plan. By it not only is the time of one or two nurses for a ward saved, but the food is warmer when it reaches the patient. It was suggested to me by one dietitian that, even though this plan was adopted, the patients should be served individually, quite as is the rule in the management of the help, rather than have the food placed upon the table, with free access to all. The above plan presents an incidental advantage in that it visibly demonstrates to the medical staff the number of convalescent patients. Undoubtedly one of the simplest measures in reducing the food supply of a hospital is the prompt discharge of the patients. No physician who has seen many years of service in a large institution but would acknowledge that a day seldom goes by that one or two patients on each service could have been discharged without detriment to themselves if more thought had been given the matter. Even if the beds were refilled at once, they would be more suitably filled.

The classification of patients might be extended with advantage by the division according to the disease. I will mention only two instances—typhoid and diabetes. In one of the best hospitals visited all the female typhoid fever patients were gathered in one of the two female wards and all the male typhoids in one of the two male wards. Not only is the diet problem simplified, but the possibility of contagion is lessened. It is an easy matter to have a rotation of services on these wards from year to year, and thus avoid any criticism of this plan which might be raised by individual members of the staff. Similarly in diabetes, if all the patients, both medical and surgical, were always sent to the same wards, where the same head nurses could have supervision of the diets, the recovery of these patients would be promoted and their care immensely simplified. Such patients usually remain a long time in the hospital, and it is not too much to say that one-fourth to one-third of their stay would be saved the institution if they were thus grouped.

Here, again, rotation in the care of these patients by the staff could be easily arranged.

SCIENTIFIC DIETETIC STUDIES

Special investigations of the diet and of the treatment of various diseases are naturally to be encouraged by the trustees and staff of a hospital. Indeed, if anyone shows the slightest interest toward progressive work, everything should be done to encourage that person. I was impressed with the facilities which were afforded for such studies in one city. At the period of my visit all suitable patients with nephritis were grouped together for this purpose. By this means the investigation was promoted and the labor simplified, and all this was done without any increase, and very likely a decrease, of expense to the hospital. This investigation would have been impracticable had the patients been individually studied while scattered about in various wards.

SPECIAL DIETS

The special diets of a hospital should be as few as possible. While a systematic investigation of special diets may be promoted, the use of special diets at random should be condemned. Already reference has been made to the extravagant number of special dishes prepared at the instigation of the staff in one large institution. It is well known that nurses often order many kinds of desserts for private patients, knowing that all will not be touched, simply to tempt the patient. This is an unjustifiable waste. In one institution I observed that, in addition to the routine test breakfast employed the world over for the study of diseases of the stomach, a different extra special meal was employed on each of the three medical services, and yet all three test meals were essentially the same. I personally knew the chief of staff of each service, and am convinced that, if the matter had been called to their attention, one standard meal would have been adopted. Systems of diet change from year to year; consequently a committee of the staff should be annually appointed to co-ordinate the various diets. These diets should be printed and distributed to each member of the staff instead of having typewritten copies given to the nurses alone. It should be expected that the staff would seldom deviate from these standards.

METHOD OF SERVING FOOD

The method in which food is served prevents or favors waste. For example, the placing of buttered toast on each tray is a most wasteful method, whereas the passing around of bread or toast and butter to each one in the ward saves much. Of course many trays are absolutely un-

touched, and yet all that is on them must of necessity be thrown away. Careful serving would obviate this great loss. Economy and efficiency are prompted in some hospitals by having the trays set and served with the cold foods in the diet kitchen, and then placed on carts and drawn into the ward for distribution to the patients. On a smaller cart the hot foods are carried in containers set in hot water, and served hot at each bedside. This method appears to be of much service in the wards of one excellent hospital in New York, and would warrant investigation. I was told that it reduced the labor one-half, and was more satisfactory from the patients' point of view. A detailed supervision of the food served each patient in the ward was thus rendered easy.

SMALL PORTIONS

The serving of small portions is another method adopted in many hospitals to prevent waste; thus, instead of giving each patient two slices of bread, one slice in the morning and at night and only half a slice at noon are given, but during the meal bread is freely passed about in the ward and all urged to take it who can eat it. Butter is also served with great care, although the patients are always told that they can have more if they wish. I heard it said that if the per capita amount of butter in an institution was above one and one-half ounces, it was a sign of gross mismanagement. Indeed, it appeared that there are well-known standards of amounts of food per individual per day for institutions, and it should be very easy for a board of trustees to determine whether their expenditures for standard foods—such as meat, bread, and butter—are above or below the general average.

CULTIVATION OF PATIENTS' TASTES

The taste of the patients was a special point made at one hospital. It was found at this hospital that waste occurred to a great extent not because the food was poor, but because the patients did not care to eat it. In the Mount Sinai Hospital in New York no essential change in the character of the food is made on account of the Jewish patients. I was told that, even if the ritual was followed in the selection of the food, the patients would not believe this to be the case, and so would not be any more satisfied. Little points, however, should be observed, such as the avoidance of gravy on the meat, for this is distasteful to the patients. On the other hand, in an Italian hospital the substitution of Italian cooks solved many dietetic difficulties.

INDIVIDUAL PORTIONS FOR THE HELP

The serving of individual portions of food to the

help was emphasized in many hospitals. If this is not done, large quantities of food are taken from the platter and yet not eaten.

NUTRITIVE VALUE OF THE DIET

The caloric value of the diet should be considered. The same amount of nourishment can often be furnished the patients more cheaply than in the form prescribed. Milk is a great offender in this respect. It is expensive, yet the custom has grown up to furnish it in large quantities to hospital patients. This is not always advisable. In the first place, there is no necessity for it; in the second place, it is a food to which many patients are not accustomed; third, it is responsible in a large degree for the proverbial constipation of the average hospital patient. Some patients obviously take milk more easily than others, but I judge that much harm is often done in the hospital by urging it on patients. Meat soups are expensive; vegetable and cereal soups can be had which contain an equal amount, or even twice as much, nourishment as meat soups, and at far less cost. In one hospital \$1,000 a year was saved by furnishing the patients coffee once a day and tea twice instead of the reverse.

The quantity and quality of the food at your hospital, so far as I am aware, has usually been most satisfactory. Whether special study has been made of the quality of food recently, I do not know. In one of the larger hospitals in New York it was found not long ago that adulteration of the food existed, and that this was easily to be ascertained and as easily corrected.

This report would be incomplete without calling attention to the necessity of the supervision of the purchase of food. Data should be furnished the superintendent showing the relative cost of different foods at the hospital compared to that at other Boston hospitals. It is also possible that co-operation could be established between the different hospitals in Boston in the purchase of food whereby considerable sums might be saved. I believe some such plan has been adopted in New York. Certainly the prices paid for the standard foods per individual per day in the different institutions of the city should be published.

The question of diet at the hospital admits of much further study. This might well be undertaken by a committee whose membership should represent the administration, the medical, surgical, and nursing staffs.

The small hospital has a great task to perform. It has to take care of the sick among the country population. To accomplish this, the country and small towns must be provided with a net of small hospitals.—*Helwes.*

NEW HOSPITAL AT GULFPORT, MISS.

King's Daughters to Have Modernly Appointed Building

A new home in course of construction for the King's Daughters' Hospital at Gulfport, Miss., is to be a two-story H-shaped structure of brick and reinforced concrete, with fire-resisting partitions, floors, and ceilings. All rooms will be outside rooms.

The building will be heated by the hot water unit system of radiation, lighted throughout with electricity and gas, and a vacuum cleaning system to control the entire building will be installed.

The basement in the right wing will contain the laundry, store rooms, heater, and machinery rooms.

The first floor will contain eighteen private wards, with corresponding private and public bath rooms, superintendent's office, general reception room, broad front porch, screened, doctors' room and library, store rooms, with necessary longitudinal and transverse corridors with broad staircases, electric elevator with connection to all floors and to roof solarium, food elevator to connect with kitchen and to all floors specially ventilated. The rear section of the right wing of the building will contain the kitchens, the dining rooms, the pantry, service rooms, refrigerator and five nurses' living or bed rooms, with bath. The arrangement of the kitchens is such that this department is cut off from the rest of the building by a heavy partition, thus eliminating any possibility of the odors incident to the preparation of foods circulating to the other parts of the building.

The second floor will contain ten private wards, duty rooms for nurses, screened porch, one public ward for males and one for females, superintendent's room, resident surgeon's room, linen rooms, store rooms, maternity wards, x-ray laboratory, male and female surgery rooms, drug, anesthesia, instrument sterilizing, surgeons' and two operating rooms, and necessary baths.

The arrangement of duty rooms for nurses is such as to provide efficient service to all private and public wards.

Elevator and staircases are prominently placed so as to give ready access to all parts of the building.

The building will be terraced and will face the south, toward the gulf, affording the maximum amount of light and air to all of its parts, and the balconies will be screened and so placed as not to shade any other floor, and give outdoor space for all patients.

Rules for Tonsil and Adenoid Work

The public health committee of the New York Academy of Medicine has recommended that all operations for adenoids and tonsils be done under general anesthesia, and that hospitals where these operations are done should be prepared to keep patients from eighteen to twenty-four hours following operation.

For several years past the Department of Health of New York, owing to want of proper facilities in the hospitals of the city, has been maintaining a number of out-clinics, and in these nearly one-third of all the tonsil and adenoid work on school children has been done. Now the Board of Estimate and Apportionment has decided that every hospital should be equipped to do this kind of work, and this year the budgets contained an appropriation for the purpose.

The Associated Out-Patient Clinics have been studying this matter, and, in co-operation with the Academy, the above general rules were promulgated.

NUTS AND NUT PREPARATIONS IN THE DIETARY¹

Among the Most Valuable of Human Foods, and Not Sufficiently Appreciated—Too Rich for Some Stomachs—A Few of the Preparations, With Comment

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NUTS

TOO often the food value of nuts is not appreciated, although they are among the most nutritious of all our foods, especially in the dried condition. While many of the nuts contain considerable protein, their high content of fat is, as a rule, their chief characteristic. This property has been taken advantage of in the efforts to produce butter substitutes or "vegetable butter," and from time to time there have appeared in the markets such products as Albene, Nucoline, Vegsu, Nuttolene, Cocos Butter, etc. Few of these preparations, however, have gained wide popularity.

By many, unfortunately, nuts are not readily digested in the stomach. This is due in part to their richness in fat and in part to their relatively high content of fibrous matter (cellulose). The objection to the cellulose may be overcome in great measure by thorough mastication. The manufacturer, however, has come to the rescue of the lazy and careless consumer by the preparation of such products as peanut butter, almond paste, etc., in making which the nuts are very finely ground.

The objection to the large quantities of fats or oils present may be overcome to some extent by a partial removal of the excess of oil, just as cocoa is prepared from chocolate, or, what is still better, by combining the nuts with other foods of a less oily nature. Making a meal of a quart of peanuts at the circus or at a foot ball game is hardly a rational practice, and it is not surprising that, eaten under such conditions, nuts should gain an unenviable reputation for indigestibility. If a suitable number of cakes or crackers, or some popcorn, or other carbohydrate food, were eaten together with these same abused peanuts, a better balanced ration would be secured with the chance of disturbing less the processes of digestion.

In order to meet the prejudices of vegetarians, certain manufacturers have produced from nuts meat substitutes, in which they succeed in developing a flavor remarkably akin to that of meat. Fromm's Extract is such a product, and according to Hutchinson contains:

Water	25.3
Protein	21.9
Fat	31.6
Carbohydrates	8.3
Ash	12.8

¹This is one of a series of papers on Foods. Next month will appear a paper on "Infant Foods," embodying the results of a long series of laboratory investigations which Mr. Street has just completed.

Kellogg's Nuttose and Protose are likewise meat substitutes and will be discussed later.

Comparatively few experiments have been made on the absorbability of nuts, but in one instance, in which the subject lived exclusively on fruits and nuts, 82.5 percent of the protein, 86.9 percent of the fat, and 96 percent of the carbohydrates were absorbed, comparing by no means unfavorably with the absorption of the ordinary mixed diet.

COMPOSITION OF NUTS

Table 1 gives average analyses of the better known nuts. A glance at this table shows the high nutritive value of nuts, and that, with a few exceptions, from 50 to 70 percent of their total substance consists of fatty matters.

TABLE 1. COMPOSITION OF NUTS¹ (Edible portion only)

Kind	Water	Ash	Protein (N × 6.25)	Fiber	Nitrogen-free extract	Ether extract (fat)	Calories per 100 gms.
Almonds	4.8	2.0	21.0	2.0	15.3	54.9	647
Beechnuts	4.0	3.5	21.9	13.2	57.4	657	
Biotens (acorns)	4.1	2.4	8.1	48.0	37.4	561	
Brazil nuts	5.3	3.9	17.0	7.0	66.8	697	
Butternuts	4.4	2.9	27.9	3.5	61.2	676	
Chestnuts, fresh	45.0	1.3	6.2	1.8	40.3	5.4	242
Chestnuts, dried	5.9	2.2	10.7	2.7	71.5	7.0	403
Cocoanuts, with milk	14.1	1.7	5.7	27.9	50.6	590	
Cocoanuts, without milk ²	8.9	1.0	3.6	17.5	31.7	370	
Cocoanut milk	92.7	0.8	0.4	4.6	1.5	34	
Filberts	3.7	2.4	15.6	13.0	65.3	702	
Hickorynuts	3.7	2.1	15.4	11.4	67.4	714	
Lichi nuts	17.9	1.5	2.9	77.5	0.2	323	
Peanuts	9.2	2.0	25.8	2.5	21.9	38.6	648
Pecans	2.7	1.9	9.6	15.3	70.5	734	
Pinenuts (pignolias)	6.4	3.4	33.9	6.9	49.4	608	
Pistachios	4.2	3.1	22.6	15.6	54.5	633	
Walnuts, black	2.5	1.9	27.6	1.7	10.0	56.3	664
Walnuts, soft-shell	2.5	1.4	16.6	2.6	13.5	63.4	701

¹Atwater & Bryant, United States Department Agriculture, Official Experiment Station, Bulletin 28 (revised).
²237.3 refuse.

Chestnuts are an exception in this respect, and are much more of a carbohydrate food than any other of our common nuts. This freedom from the usual excess of fat should make chestnuts of great general value as an article of diet. It has been claimed that a given area of ground when planted with chestnut trees produces the maximum amount of human food.

Lichi, or Chinese, nuts, are almost totally deficient in fat; in fact, they are not true nuts in the ordinary sense of the term.

As will be seen by the table, the nuts, excepting chestnuts and lichi nuts, are relatively low in car-

bohydrates, and, with these exceptions, the carbohydrates present contain but little starch. This fact is taken advantage of in the preparation of diabetic dietaries, for which almond, peanut, and walnut preparations are extremely well suited.

The last column in the table shows the high fuel value of nuts. When it is remembered that 100 grams of rib roast beef yield but 291 calories and the same amounts of full cream cheese and wheat bread yield but 417 and 261 calories respectively, such fuel values as 647 per 100 grams for almonds, 403 for dried chestnuts, 548 for peanuts; 734 for pecans, and 664 for walnuts clearly show the great nutriment value of nuts. An exclusive nut diet is not to be recommended for obvious reasons, but in the writer's judgment nuts should enter more widely into the ordinary daily dietary, either in the natural condition, or as nut pastes and butters, or in the form of breads, cakes, and biscuits.

Nuts are seldom adulterated, and insect injury is easily apparent even to the careless purchaser. Pecans are at times treated with an ochreous material to improve the color of the shells and thus to suggest superior quality, but, aside from this, the writer is unaware of any serious form of nut adulteration. Shriveled and even wormy nuts are, of course, offered for sale, but so are rancid butter and watered milk.

NUT PREPARATIONS

Table 2 gives the analyses of a number of special nut preparations, nearly all of which were examined in the writer's laboratory. The almond pastes are simply ground almonds, partially defatted. Kellogg's Almond Butter, on the other hand, represents a paste made from the entire nuts. It is recommended as "a perfect substitute for cow's milk," which, of course, it is not, as in cow's milk the protein and fat are present in nearly equal amounts and the carbohydrates in considerable excess, conditions which are not even approximated in this product. Health Food Company's Almond Meal and Van Abbott's Almond Flour differ in that in the former over one-half of the oil has been removed, while the Van Abbott preparation is very similar to Kellogg's, already discussed. The remaining almond preparations in the table are offered primarily as diabetic foods. With the exception of the Loeb and Sanity brands, the amounts of carbohydrates present are much too high for strict diabetic dietaries. For normal people, however, all of these almond preparations are desirable and highly nutritious foods.

The different brands of peanut butter show only trifling variations in composition. They consist essentially of very finely ground peanuts, to which

TABLE 2. NUT PREPARATIONS

Brand	Water	Ash	Protein (N × 6.25)	Fiber	Nitrogen-free extract	Ether extract (fat)	Calories per 100 grms.
ALMOND PREPARATIONS							
Chapman's Almond Paste...	23.7	1.4	13.1	36.8	25.5	427	
Heide's Almond Paste....	22.0	1.6	12.7	43.7	20.0	406	
Spencer's Almond Paste....	27.0	1.7	13.5	31.6	26.2	416	
Kellogg's Almond Butter....	0.9	2.9	22.6	8.9	8.2	61.5	677
Health Food Co.'s Almond Meal	7.2	5.5	49.1	0.5	15.9	21.8	457
Van Abbott's Almond Flour	4.0	3.0	24.6	1.9	7.9	58.6	657
Callard, Stewart & Watt's Almond Biscuit	3.7	3.2	28.3	36.8	28.0	512	
Callard, Stewart & Watt's Almond Shortbreads	4.2	3.5	19.5	20.7	52.1	630	
Charrasse Gluten—Almond Biscuits	5.3	1.6	18.1	0.6	50.6	23.8	489
Johnson's Almond Biscuits.	5.3	2.1	29.0	0.5	54.3	8.8	412
Health Food Co.'s Saliva Al- mond Sticks	2.6	3.4	22.3	0.7	41.1	29.9	523
Loeb's Diabetic Almond Macaroons	3.2	3.0	46.5	1.5	8.0	37.8	558
"Sanity" Almond Cakes for Diabetics	4.3	2.9	32.5	0.9	10.8	48.6	611
PEANUT PREPARATIONS							
Beardsley's Acme Peanut Butter	2.2	4.4	28.2	1.7	15.2	48.3	608
Beechnut Peanut Butter....	2.0	3.5	29.4	1.9	16.6	46.6	603
Brooke's Peanut Butter....	1.8	3.8	29.5	1.5	14.9	48.5	614
Heins's Peanut Butter....	3.0	3.9	28.9	1.7	15.2	47.3	592
Kellogg's Peanut Butter....	3.3	3.1	29.4	1.4	13.5	49.3	615
Leggett's Premier Peanut Butter	2.1	4.0	29.7	1.7	18.8	43.7	587
MacLaren's Eagle Peanut Butter	1.5	3.8	32.1	1.7	16.0	44.9	597
Nut Products Co.'s Fenolia.	2.4	3.9	27.9	1.5	13.0	51.3	625
Pierce's Acharis Peanut But- ter	1.7	3.7	28.7	3.0	14.6	48.3	608
Peanut Butter (average 14 analyses)	2.3	4.0	29.3	1.8	15.4	47.2	604
Rademann's Peanut Bread....	24.6	3.8	33.6	5.5	19.7	12.8	328
Frank's Peanut Cakes....	6.4	2.7	32.2	3.1	36.5	19.1	447
Rademann's Peanut Biscuits	1.9	2.7	34.8	...	39.1	21.5	489
Kellogg's Nut (Peanut) Meal	3.0	2.2	29.0	2.0	12.1	51.7	630
PINENUTS							
Diets Food Company....	2.2	4.6	39.7	0.8	2.7	50.0	620
Jireh Food Company....	2.0	4.6	39.7	0.9	3.4	49.4	617
Kellogg Food Company....	2.6	4.5	38.0	1.1	4.2	49.6	615
MALTED NUTS							
Kellogg's Malted Nuts....	2.6	2.2	28.7	43.9	27.6	519	
Nashville San.-Food Co.'s Malted Nut Food....	3.4	1.7	24.7	27.5	42.7	593	
MISCELLANEOUS NUT PREPARATIONS							
Fromm's Hazelnut Sticks....	5.2	2.9	13.4	1.7	60.8	16.0	441
Van Abbott's Walnut Bis- cuits	4.4	2.9	20.9	2.3	12.3	57.2	648
Kellogg's Lacnut	3.8	2.0	22.2	1.2	39.5	31.3	529
Kellogg's Nut Bromose....	14.0	1.5	17.1	1.2	39.4	26.8	467
Kellogg's Nut Butter....	0.2	2.9	28.8	8.7	13.9	50.5	625
Kellogg's Nuttolene	55.2	2.2	12.7	1.9	6.3	21.8	272
Kellogg's Nuttose	57.3	2.3	16.9	0.9	0.6	22.0	268
Kellogg's Protose Vegetable Meat	60.6	1.8	21.9	0.4	8.2	7.1	184
Kellogg's Protose Vegetable Meat, potted	56.6	2.7	18.1	0.6	8.7	18.3	227
Kellogg's Protose Vegetable Meat, roast	57.5	2.2	23.9	0.5	7.9	8.0	199
Nashville San.-Food Co.'s Nut Butter	1.9	2.9	28.0	1.6	13.0	52.6	637
Nashville San.-Food Co.'s Nutcysa	57.0	1.8	12.9	1.0	6.3	21.0	266
Nashville San.-Food Co.'s Nutfoda	62.3	1.6	20.8	0.5	6.8	8.0	182
SOME STAPLE FOODS							
Rib roast beef....	57.0	0.9	17.5	...	...	24.6	291
Butter	11.0	3.0	1.0	...	...	85.0	769
Cheese, full cream....	34.2	3.8	25.9	...	2.4	33.7	417
Milk	87.0	0.7	3.3	...	5.0	4.0	69
Wheat bread	35.3	1.1	9.2	0.5	52.6	1.8	261

sufficient salt for seasoning has been added. A chemical analysis, of course, does not indicate delicacy of flavor, and no doubt these brands vary in this respect, but these variations in quality, marked though they may be, hardly justify such a range of cost per pound as from 16 to 74 cents.

the prices asked for the fourteen samples analyzed by the writer. The lowest priced sample of these peanut butters in one pound yielded over 2,700 calories for 16 cents. Peanut butter carries somewhat less than 5 percent of starch, and, in spite of the 15 percent of carbohydrates present, is by no means to be despised in dietaries where an excess of carbohydrates is inhibited.

The three analyses of pine nuts are very much alike. This nut affords a highly nutritious food; it contains no starch and only a few percent of total carbohydrates. It is a most suitable food for carbohydrate-poor dietaries.

The malted nuts require no special comment, the Nashville sample containing considerably more fat, not necessarily an advantage.

Among the miscellaneous samples Fromm's Hazelnut Sticks and Van Abbott's Walnut Biscuits are sold as special diabetic foods; the former is as entirely unsuitable for this purpose as the latter is acceptable.

Kellogg's Lacnut is a preparation of almonds and other nuts especially intended for infant feeding. It is claimed that its composition "is nearly identical with that of mother's milk," and it is true that the relative amounts of protein, fat, and carbohydrates present are not widely dissimilar to those found in human milk.

Kellogg's Nut Bromose is a confection rather than a food, and is made from nuts and "meltose," the Kellogg name for the well-known sugar, maltose.

Kellogg's Nut Butter resembles peanut butter in composition, but is made from a combination of nuts.

Kellogg's Nuttolene, Nuttose, and the various Protose preparations are offered as substitutes for meat. Nuttolene is of the consistency of cream cheese, with a flavor similar to that of meat. Nuttose is a nut product, nearly carbohydrate-free, and with a decided meaty flavor. Protose is sold as a "vegetable meat," looks like meat, tastes like meat, smells like meat, has the composition of meat, and even the fiber of meat. It contains less than half as much fat as Nuttose, with considerably more protein and carbohydrates. Protose Roast is ordinary Protose roasted with a special brown sauce, while Protose Potted is a mixture of Protose and Nuttolene roasted together and then reduced to a pulp.

The three Nashville Sanitarium products require no special comment. The Nut Butter, Nutcysa, and Nutfoda resemble very closely in composition Kellogg's Nut Butter, Nuttolene, and Protose, respectively.

At the end of the table are given analyses of roast beef, butter, cream cheese, milk, and wheat

bread for the purpose of comparison with the products under discussion. That the nut preparations are of great nutritive value is not open to argument; whether they are too concentrated and rich for common consumption, each person will have to decide for himself.

AFTER THE NEW YORK HOSPITALS

Superintendents to Be Prosecuted for Failure to Notify Health Department of Contagious Diseases

The commissioner of health of New York city recently sent the following letter to each of the hospitals of the city, notifying superintendents that in the future they will be held strictly accountable for failure to promptly report the various notifiable diseases as required by section 86 of the sanitary code:

"Dear Sir: The delay in reporting communicable diseases, particularly typhoid fever, by the superintendents of hospitals, as required by section 86 of the sanitary code, has prevented the department from obtaining such information as would make the prompt suppression of epidemics possible. The control of the sources of infection by the department must wait on the initial notification of cases of the disease, and our entire procedure in regard to typhoid fever depends for its success on prompt and conscientious compliance with this section of the code. Failure to observe this regulation has resulted within the last year in so much avoidable sickness that the department feels justified in proceeding through the courts against any hospital superintendent who is found by the department to have failed in this particular.

"The department would further urge that suspected cases of typhoid fever should be reported even before a complete and positive clinical diagnosis is available or declared by the clinicians in charge. The report of such cases would often put the department in a position to take most effective action to stop incipient epidemics.

"Compliance with sections 86 and 91 of the sanitary code has been very irregular and incomplete so far as these sections refer to suppurative conjunctivitis and puerperal septicemias occurring in hospitals and other institutions. Superintendents will hereafter be held strictly accountable for failure to report as required.

"HAVEN EMERSON, Commissioner."

New York Standardizing Hospital Diets

The menu committee, comprised of the resident physicians, supervising nurses, matrons, and the dietitian of the department's hospitals, under the supervision of the director of the Bureau of Hospitals, have apparently given complete satisfaction by new dietary methods introduced in January, 1915. The department's report for the first nine months of 1915 shows a saving in the contagious hospitals alone of nearly \$10,000. This saving has been accomplished (1) by actually diminishing the amount of high-priced food (meat) in the various dietaries and substituting therefor other foodstuffs equally nutritious and agreeable, (2) by eliminating waste in the preparation of the food through the use of standard menus, and (3) by giving the employees the kind of food that they wanted, thus reducing plate waste.

In favor of large hospitals it may be urged that they offer great facilities for clinical instruction, and some of them have attained great renown in this respect; but, on the other hand, there are some smaller institutions in existence which receive, almost exclusively, clinical cases, and are quite sufficient for the purpose of medical education.—F. Oppert.

THE ADMITTING DEPARTMENT OF A LARGE HOSPITAL

An All-Time Salaried Admitting Officer Adds to the Efficiency of the Service—Protects the Patient and the Institution—The Methods of Procedure

By DANIEL POLL, A. B., M. D., ADMITTING OFFICER, MOUNT SINAI HOSPITAL, NEW YORK

ALMOST every large hospital has many more applicants for admission to its wards than it can possibly accommodate. Many persons applying for admission do not need hospital care. Some apply for an ulterior motive, but very many are in need of hospital treatment because of their financial and home conditions. Even of this latter class the number applying is too large to be accommodated, and, as a hospital aims to aid the most worthy of its applicants, these must be weeded out from the large number seeking admission. This duty has been recognized by hospital authorities as one of the important functions of the hospital, and has been assigned in many instances to a separate department.

The admitting department of a hospital is the hospital sieve, so to speak. It was formerly the custom to entrust the admission of patients to the house staffs of hospitals, or to have the work administered by a staff of visiting physicians who came at stated hours of the day to examine patients. Some hospitals still retain the latter system, but in some of the larger institutions a resident salaried officer has been installed. This is the system in vogue for the last four years in Mount Sinai Hospital in New York.

Formerly a group of visiting admitting physicians was employed. The men who held these positions were practicing physicians in the City of New York. The admitting staff consisted of a chief admitting physician and two or more assistants. The assistants were generally appointed from the younger of the hospital graduates, and divided the day with the chief physician, each man devoting about two hours to the work. It was found, however, that the men could not always come promptly at their appointed times, as their practices required their attention. Consequently applicants were sometimes kept waiting. Furthermore, the admission of patients by three or more men at different times was found to interfere with uniformity in the hospital service, as men differ as to what are and what are not hospital cases. Of course, the term "hospital case" varies with the institution, certain types of cases being excluded by rule from some institutions.

On account of the difficulties experienced with the system of visiting admitting physicians, it was decided to install a salaried admitting physician, who was to devote his entire time to the

admitting department of the hospital and was not to be permitted to practice medicine privately. This latter precaution is necessary for two reasons: in the first place, the admitting officer can devote his entire time and interest to the hospital and is not distracted by his private practice. If the admitting physician were allowed to practice medicine patients and physicians might be tempted to call him to see cases, thinking that the payment of a fee for examination of a patient might influence him to admit such a patient to the hospital. The most rigid impartiality and the most absolute integrity would be no bar to suspicion or criticism on this score.

Mount Sinai usually selects as admitting physician one of its recent graduates. The salary and full time rule would not appeal to any of the older men, while such a position, from the standpoint of experience and remuneration, is alluring to a younger graduate. At the time of appointment the admitting physician is required to accept the position for a period of two years. If possible a longer term of service should be secured, for, while probably not of much added value to the physician, his increasing experience makes his services more and more valuable to the hospital.

For the post of admitting physician in a large general hospital a man with a medical training as complete as possible should be secured. This should include a training in medicine and surgery in addition to a short time spent in acquiring a fair knowledge of some of the more important specialties, such as dermatology, neurology and pediatrics. It is my opinion that a man who has had a medical service as a hospital intern, with just enough surgery to acquire a knowledge of the symptomatology of most of the acute surgical diseases, is better fitted for the post of admitting physician than a surgical intern. The surgical service is naturally the faster changing service and much time is spent by the intern off the wards. The medical intern, on the other hand, has time to get in closer touch with the patients in the hospital and, therefore, has a better opportunity for the acquisition of what is known in medical parlance as "clinical instinct." And this is a most valuable attribute for the post under consideration.

The questions, "Is this patient a hospital case?" "Is he really sick?" come up many times a day in

the admitting room of a large hospital. Where only a few moments can be devoted to the examination of each case this question must be decided quickly, and the man with keen "clinical instinct" is most competent to make the decision. For under no circumstances must a really sick case be turned away, while, on the other hand, the hospital wards should not be filled with patients who have no real ailments. In puzzling cases I have always followed the plan of giving the patient the benefit of any doubt.

In considering the appointment of a man for the post of admitting physician of a large hospital, the possession of tact and some executive ability are of quite as much importance as medical ability. In dealing with private practitioners who recommend cases to the hospital, care must always be taken not to give offense; and yet, in many instances, applications which have the endorsement of private physicians must be refused, owing either to lack of room or the unsuitability of the case. Private practitioners are prone to refer to the hospital hopeless, chronic cases, persons who, with more means at their command, could well be cared for at home. In a hospital devoted to the treatment of acute illnesses such cases must be refused. This easily produces friction, and unless such a situation is delicately handled, antagonism arises between the hospital and the private practitioner. In our institution we have always tried to avoid this whenever possible.

Then there often arises the question of patients recommended by contributors to the hospital. Some of these patients are not really hospital cases, requiring only a little ambulatory treatment and enough aid to set them on their feet again. These situations must be explained to the patient's sponsor, and their amicable adjustment often requires the exercise of a good deal of tact and care. Constantly tackling these problems can alone teach a man how best to solve them.

The system adopted in the admitting department of our hospital is briefly as follows: The admitting physician is on duty at the hospital between the hours of 9:00 a. m. and 6:00 p. m., during which time all applicants for admission are examined. As only emergency cases are admitted at night, it is not necessary to have the admitting physician on duty after 6:00 p. m. When a patient applies for admission after that hour, one of the house physicians or surgeons is called to examine him. If the case is urgent it is admitted; if not, the patient is asked to return on the following day during the admitting hours, but only after a most painstaking examination and a careful record of the findings have been made.

A large percentage of patients seeking admission to the hospital are recommended by private physicians or by dispensaries. Applicants are requested to bring with them notes from their physicians or from the dispensary, stating the nature of the ailment. This precaution does away with two evils: first, it relieves the admitting department of the dispensary case which needs ambulatory treatment. If all these patients were permitted to apply directly to the admitting department of the hospital the work could not be handled on account of its bulk; it is better to make the dispensary the feeder of the hospital than vice versa; second, this system does away with "free consultations," for many patients who are under treatment by private physicians would apply to the hospital admitting department for examination and for the confirmation or rejection of their doctor's diagnosis. Of course, this would be absolutely unfair to the private practitioner.

This rule of recommendation cannot be followed in the case of the very sick patient who comes to the hospital of his own accord, seeking admission. If such a patient presents himself he is, of course, examined and admitted. When a patient presents himself for examination with a note from a physician, his history is briefly taken and he is examined in the usual routine way. A record is kept of every applicant, whether rejected or accepted. Of course examinations must be rather superficial, and errors in diagnosis are not uncommon, owing to the large number of patients and the lack of time. If the case warrants immediate admission to the hospital, this is done, if at all possible.

Patients who do not require immediate treatment are placed on waiting lists, divided according to the different hospital departments. The "waiting list" cases, not urgent but nevertheless requiring hospital care, include many of the more common surgical and gynecological conditions, and medical cases requiring such observation and study as the hospital alone affords. A census of each ward of the hospital, taken every morning and evening, shows the admitting physician exactly how many vacancies there are throughout the institution. Each evening the census is consulted and patients on the waiting list are notified to report for admission the following day. List cases are admitted according to date of application, as far as possible. This right is set aside, however, in consideration of the gravity of the ailment; for instance, it often becomes necessary to place on the surgical waiting list cases of carcinoma. An attempt is made to admit these cases before the less serious conditions which may have preceded the cancer victim on the list.

When a case is admitted to the hospital, the admitting physician assigns it to the department to which he thinks it belongs. Where a department has been subdivided into services, cases are admitted alternately to each service; this is done to avoid any question of partiality. Patients referred to the hospital by its own visiting staff receive only the same careful consideration as all other patients, but an attempt is always made to admit the patients referred by an attending physician or surgeon to his own service.

Every case that comes to the hospital recommended by a doctor or dispensary must be disposed of in some way. To facilitate matters cooperation between the different hospital departments is necessary. Cooperation between the admitting departments of the various large hospitals of a city is desirable, but not always attainable; it is worth striving for, however, and when once attained will add to the efficiency of all the hospitals. Such cooperation permits a patient to be sent from an overcrowded hospital directly to another which may be less crowded; the advantage to the patient, and ultimately to the public, is obvious.

As I have previously remarked, it becomes necessary to refuse admission to many patients, even though sent to the hospital by a private practitioner. If the case is deemed one for ambulatory treatment, an effort is made to refer the patient back to his physician. If, however, the patient is too poor to afford this, he is recommended directly to the hospital dispensary for treatment.

The social welfare department of a hospital is often of inestimable value in aiding in the disposition of cases, which are thus taken out of the hospital sphere. Some cases are too mild to be treated in the hospital and yet cannot be cared for at home. Such instances one sees in mild chorea cases among the poor. By cooperation with a children's country hospital, I have succeeded in having quite a number of these children sent out of the city, where, with open-air treatment, astonishingly good results have been obtained.

Conducted in conjunction with the admitting department of the hospital is the district service, consisting of two practicing physicians, who see patients who are unable to come to the hospital for examination. Cases are often reported to the admitting physician by friends or neighbors, who claim that the patient is too poor to afford the services of a private physician and too ill to come to the hospital for examination. In such a case the admitting physician assigns one of the district men to examine the patient. On his report

the patient is admitted or rejected. I have also utilized the district physicians to clear up the vague, and at times dubious, statements of private physicians, who have either applied by telephone or sent letters to the hospital requesting the admission of patients. The district physicians are of aid also in the temporary treatment of list cases pending admission.

It has been suggested that the admitting physician have charge of the discharge of patients. With this opinion I cannot agree. The attending physician or surgeon who has cared for a case for a period of time is the best judge as to when that case should leave the hospital.

The main criticism of the one-man admitting system in a large hospital is the superficiality of the examinations. With this criticism we must agree. But, accurate diagnosis is not aimed at, nor is it strictly necessary, since the patient will be treated by others who will study the case at leisure, and, as I remarked before, in a question of doubt as to the admission of a case, the patient is always given the benefit of the doubt.

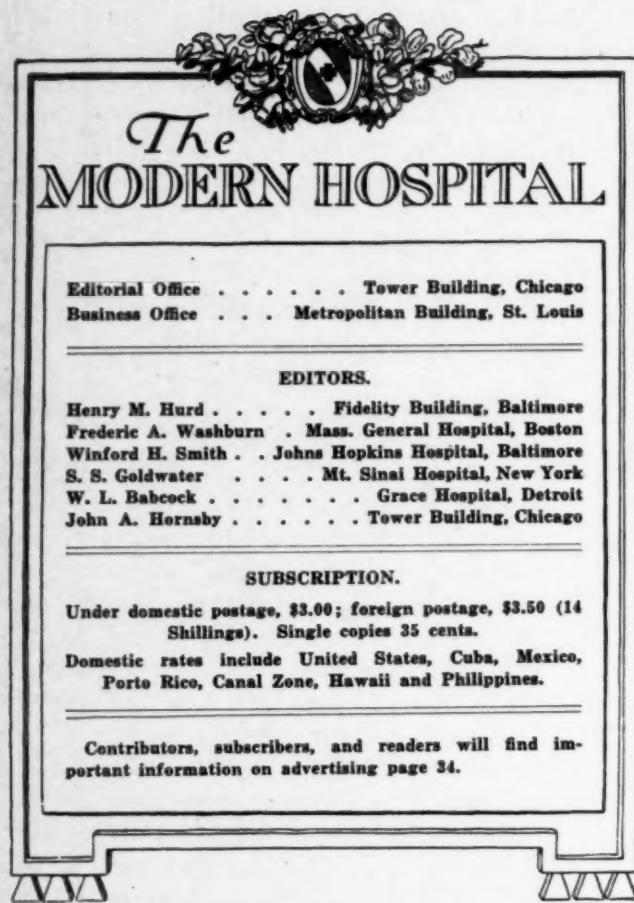
A small observation ward of a few beds where border-line cases can be observed for twenty-four hours is of great help to the admitting physician, and often results at the end of that time in the discharge of a patient who would otherwise have been admitted.

The best method of disposing of each case referred to a hospital can only be determined by experience, acquired by constant attention to the business of admitting patients to a hospital. It is the added efficiency which is acquired by a resident physician which makes this system superior to any other. It leads to satisfaction on the part of both the patient and the private physician, and increases the efficiency of the hospital.

Goat's Milk Being Used at Sea View Hospital

A herd of twenty-six goats, bred by the United States Department of Agriculture, was recently placed at the disposal of Sea View Hospital by the federal authorities. One hundred and twenty-five infants are being nourished on goat's milk, and through the cooperation of the research laboratory of the New York Health Department the clinical observations of this experiment will be supplemented by careful laboratory data. Results should demonstrate to some extent the real value of goat's milk as a food for tuberculosis children, and perhaps prove that it contains immune bodies exerting a positive action in the prevention of tuberculosis.

The history of hospitals in the Occident is still very incomplete. The records of the earlier law and church history contain some data, but the information has not received the consideration of theologians or jurists, and least of all of medical men.



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Another Source of Friction in Hospital Administration

Serious difficulties in hospital administration are often due to the lack of a proper differentiation of the regular duties of the several departments. Nurses, for example, sometimes cannot resist the impulse to regulate the kitchen or the laundry. Matrons occasionally are found who have a fixed and overwhelming desire to assume the responsibility and direction of the nursing work, to the neglect of their own duties. Physicians—and visiting physicians at that—sometimes long to undertake the distribution of pupil nurses in ward duty, and seek to instruct them and sometimes to discipline them.

In fact, almost every day some person connected with a hospital, in a spirit of the truest altruism doubtless, feels a keen desire to relieve another department of the responsibility of the work assigned to its apparent chief. In addition to administrative work, many unselfish persons, high and low, in every department find it impossible to resist the overpowering temptation to engage in the purchase of supplies. They may not have had any experience in such duties, but they are inwardly impressed with a conviction that they know what they wish and are willing to undertake the task—at the expense of the hospital. The result of all this is a confusion of duty, a mingling

of responsibilities, and a loss of efficiency, costly to the institution, all of which are most unwise.

The governing principle in every hospital should be departmental independence and autonomy, regulated and controlled by and through the superintendent. If the superintendent is the proper person for the position, he or she knows the needs of the hospital and the resources at command, and manages it accordingly. He is also familiar with the condition of the various departments, and can apply the spur to the weary or the curb to the impetuous much better than can any other person. He does not require the services of the nurse to manage the laundry or the kitchen, or those of the matron or physician to manage the nursing department. Each of these departments should have a competent head. It is his duty to supply the proper person for this work, and to hold up the hands of the heads of the various departments in order to prevent them from being raided by well-meaning persons who may, in fact, be indifferently acquainted with their own duties.

The watchword of every large institution should be departmental independence, coordinated through the office of the head of the hospital. Hands off! should be written over every door. In this manner only every head of a subordinate department can have an opportunity to work out his own methods and to develop his powers and to show his capacity. The application of the same principle is necessary for the success of small as well as large and complex organizations. Why should hospitals be an exception to the rule? Nothing makes more for the development of the head of a department than a consciousness that he is trusted and is free to meet problems in his own manner, as long as he does not interfere with the policy of the hospital or violate its regulations. After all, results should be sought by every executive, and methods should be left to the energy and initiative of the person who is charged with the responsibility of the work.

HENRY M. HURD.

Beauty as a Curative Agent

More than 500,000 people are sick in the hospitals of the United States every day in the year. The average stay of these people in the hospital is about two weeks; the average cost for the maintenance of these sick people is \$1.50 per capita. This means that more than \$750,000 are expended every day for the care of the sick. This does not include interest on invested funds and new construction.

If it were possible to shorten the time of these sick people by even one day, there would be a sav-

ing to the hospitals of this country amounting to approximately \$750,000 every two weeks, or an amount aggregating \$18,000,000 per year.

Mr. Grosvenor Atterbury, Fellow of the American Institute of Architects and the architect who built some of the new structures connected with Johns Hopkins Hospital, in an address recently at the dedicatory services of the Henry Phipps Psychiatric Clinic of Johns Hopkins suggested that while the medical profession and the hospital people considered it highly necessary that the sick in the hospitals should be surrounded by pleasant odors as against the older offensive smells of ether and iodoform; and that, while it was considered necessary that there be quiet in the hospitals, and that, in deciding on a site for a hospital, quiet and freedom from noises were given great consideration, the sense of sight seemed to make no appeal for consideration. On the contrary, he stated, asepticism, with its glaring white walls, severely simple furniture, and freedom from draperies and curtains and the little incidentals of home comfort, seemed not to be necessary, and yet, he argued, if the eye is the "window of the soul," why was it not quite as important to impress the mind of the sick through the eye by the use of harmonious colors and pretty things?

Mr. Atterbury has no doubt that the medical profession and the hospital people believe that sweet smells and harmonious sounds, or freedom from noise, have much to do with the recovery of the sick, and he has no doubt that physicians feel that these aids to their treatment serve in an immeasurable degree to shorten the stay of the sick in the hospitals.

Then why, he argued, would not pleasing sights and harmonious colors and agreeable forms also serve to shorten the stay of the sick; and, even regarding the matter wholly from a financial standpoint, he believed that money would be saved if some attention and a small amount of expense were given to simple but artistic decorations. It was his experience that architects were obliged to fight with hospital boards, physicians, and administrators for every dollar of expense incurred in architectural ornamentation in the beautification of the buildings and in the creation of pretty things.

There is very much to be said in favor of Mr. Atterbury's contention, and we are wondering whether the hospitals are not thinking just a little too much of the severities of hospital requirements, and if they are not ignoring too much the artistic things that appeal to the eye. Simple, plain draperies for the window in quiet, harmonious colors, pleasing tints in the wall colorings, a few good pictures on the walls—these things will

not cost much money, and there is no doubt that a home atmosphere and the things that spell home to the sick would have a large influence on their recovery.

As Mr. Atterbury points out there need be no compromise with aseptic requirements in pleasing the sense of sight of the sick, because it costs no more to decorate the walls harmoniously than it does to enamel them with ordinary white paints. Simple draperies and curtains for the windows can be washed without trouble, and they last a long time. And now we are coming to the time when the necessity for pictures in the hospitals is impressing a number of commercial concerns, and they are offering or about to offer for hospital use very choice pictures, copies of the old masters and some excellent photogravures of good paintings by more recent artists, to be put on by a modification of the old decalcomania process, where the picture and its frame are impressed directly on the painted wall, so that the painting can be washed whenever the wall is washed, and allow no places for dust and dirt to accumulate, and the processes of cleaning a room or a ward can be accomplished precisely as though there were no paintings there.

Shall the Out-Patient Department Include a Division of Hygiene?

The life extension movement, which is now in full swing, proposes to apply the teachings of medical science to the prevention of disease in a more effective way than has heretofore been customary.

Efforts to prevent disease may be of a social character, attacking conditions which affect large groups of persons, or they may be directed toward the individual. The first method is one which is properly related to government, and which lends itself readily to the national, state, or local department of health; the second appeals to sanitarians and to other qualified persons who are in a position to reach and to influence the individual. While efforts of this latter kind have hitherto been left to the private physician or to the agents of various voluntary associations which undertake to promote health, it is now generally understood that the hospital and its normal adjuncts, the out-patient department and the laboratory, are in a position to play a useful part in this movement. I would suggest that each hospital establish a department of hygiene as a branch of its out-patient service.

The principal work of the proposed department of hygiene would be the periodic physical examination of individuals for the early detection of any morbid tendency which is susceptible to con-

trol by hygienic measures. By this means many constitutional diseases may be prevented or postponed. But every available opportunity to inculcate the principles of wholesome living should be utilized, and to this end intimate relations should be established between the proposed department of hygiene and the educational bureau of the local department of health. I refrain from suggesting a complete program, because such a program should be prepared with a full knowledge of the institutional resources which are available as well as of the peculiar needs of the locality.

The establishment of the proposed department of hygiene would be an innovation; this is about the strongest argument that can be made against it, and I am convinced that it is an argument that will presently yield to the pressure of an insistent demand for a wiser, saner, and more profitable use of the teachings of modern medicine.

S. S. GOLDWATER.

Miss Goodrich Joins Our Editorial Force

THE MODERN HOSPITAL had the misfortune recently to lose the services, as editor of the Department of Nursing, of Miss Mary M. Riddle, who has been obliged to retire on account of ill health. The editors of THE MODERN HOSPITAL greatly deplore the loss of Miss Riddle, and we know that our readers and the hospital world generally will regard her retirement as a serious impairment of the service of one of our most important departments.

But in this fine old world of ours it seems to be almost universally ordained that each cloud, as it passes over, gives way to an ever brighter and more glorious sunshine, and we are delighted to announce that our editors have unanimously chosen Miss Annie W. Goodrich, Teachers' College, Columbia University, as Miss Riddle's successor, and Miss Goodrich has accepted the chair, beginning with the March number.

It would be entirely superfluous to tell the hospital people of this country—indeed, of any country—who Miss Goodrich is. Her name and her work are household possessions in the realms of medicine, nursing, and hospital administration, and we are sure that she will have the enthusiastic support of everybody—only please let that support take active form, to the end that the actual physical work that Miss Goodrich has undertaken may be reduced to the smallest possible amount. There is a good deal of drudgery in any editorial work, and, if the hospital people and those in the nursing and medical professions will contribute to Miss Goodrich's pages, there will be far more time left in which she may think about the bigger and

broader things in this inspiring and busy field of ours.

We look forward with glowing optimism in anticipation of Miss Goodrich's association as one of the editors of THE MODERN HOSPITAL. Just now happens to be an epoch of evolution; many medical and nursing and hospital standards are in the making; there are a few rough, incongruous spots here and there in the fabric of coordination, but there is no doubt in our mind that Miss Goodrich's participation is to be a most influential factor in smoothing out the wrinkles and rough edges, and that the hospitals, the sick, the poor, and the helpless in every walk of life and in every corner of the earth are to be better off for the new and added opportunities that are to come to her brilliant mind, her fine training, and her broad humanity.

Who Shall Manage the Training School for Nurses?

The original relation of the nurses' training school to the hospital was formerly much more clearly defined than at present. The school was not a part of the hospital, but was allowed to have access to it on trial as a matter of privilege—it was considered by all to be an experiment. At Bellevue Hospital, New York, and also at New Haven, Boston, and Chicago the first schools were established outside of the hospitals by philanthropic and broadminded women, anxious to promote the training of nurses, who gained access to hospitals only by entering into contract with them to do a portion of the nursing. They not only supplied the nurses and appointed their officers, but also attended to the housing of nurses and provided for the maintenance of the schools. They did not furnish nurses for the whole hospital, but supplied such selected portions as they were permitted to enter. Their nurses were viewed with suspicion by the hospital management, and to some extent by the physicians who were in attendance on the hospital. The hospital authorities sometimes regarded the presence of women nurses in their wards as a tacit criticism on conditions which had formerly existed. The managers of the school, in their turn, found sufficient ground for open criticism in the condition of the wards and the methods of nursing the patients which had not been placed under the care of their nurses. The visiting staff also entered into the controversy, many being warmly attached to the old system, under which the nursing had been done by "natural," "heaven-born" nurses, and others being in sympathy with the movement and co-

operative in the new work. The hospital consequently did not always appreciate the nurses; nor could the nurses, in such an atmosphere of criticism and controversy, develop their own methods in the best manner.

It is not strange that it soon became necessary to establish training schools as an integral part of the hospital, under superintendents appointed by the hospital authorities and responsible to them for the performance of their duties. At first this was done only to a limited extent, but the practice rapidly grew, and at the present time nearly all hospitals have their own schools, and the work of the training school is regarded an important part of every hospital organization. The school, in fact, has become an essential part of hospital machinery, and no general hospital at the present day can think of dispensing with its training school. Although the evolution of the system has been remarkably successful, the situation is not everywhere free from difficulties. Many hospital superintendents still think that even the minor details of the management of a school should be lodged in their hands, and that nurses should be appointed, trained, and disciplined by them as were the old-fashioned and untrained nurses. On the other hand, the superintendents of schools who came into the hospital training schools after they had received training in outside schools regard the training school as a separate entity, and have difficulty in becoming reconciled to the conception that it is an integral part of the hospital.

The proper and efficient relation of the training school to the hospital would seem to be not difficult to determine. Every school should belong to the hospital and should be responsible to it for the education of nurses and the nursing work of the hospital. The trustees should feel the same responsibility for the school as for any other department. They should foster and promote its ends in every practical way. They should select and appoint a competent superintendent, and should give her authority to select proper candidates for appointment as pupil nurses. It is manifestly unfair to hold the superintendent of a training school responsible for nursing the inmates of the hospital and at the same time give her no voice in the selection of her nurses. To do proper and efficient work, the superintendent must have such assistants as she can trust and develop. The final right of definite appointment, however, must rest with the trustees. Appointments recommended by the superintendent of nurses, approved by the superintendent of the hospital, should in the end be definitely made by the trustees or managing board of the hospital.

Such final appointment by the trustees is essential to the proper fulfillment of the duties and responsibilities of the board in order to avoid the contingencies which may arise growing out of accidents or negligence on the part of employees. The principle of law which has been sustained by many courts provides that hospitals shall not be liable for damages, provided their governing boards exercise due care and consideration in the appointment of officers, nurses, and employees. The managing board of the hospital must use due diligence and proper care in making all appointments, and the usefulness of the nurse is largely increased when she has thus received her appointment after careful investigation as to her character and fitness to undertake the work.

The responsibility for the character of the nursing, however, must belong to the superintendent of nurses, and, to assume this to her own satisfaction, she should have the selection of pupil nurses. No person has the right to ask any artisan to do a specified task and at the same time forbid him to select his own tools. This is equally true of one who is responsible for the education of nurses. All courses of study should be arranged by the superintendent of nurses after consultation with the superintendent of the hospital. All assignments of duty of nurses should be left to the same authority. It is impossible to give nurses a rounded and complete course of instruction and experience when they are assigned to duty according to the whims of physicians. It must not be forgotten that the object of the training school is not alone to secure nursing for the hospital; it is equally to give a proper education to the pupil nurse. She comes often at great sacrifice of time and money, at an age when her earning capacity is at its highest, to secure her training in nursing. She has a right to be educated as well as utilized. This fact should never be lost sight of.

These principles are already well established; they should be acted on in all good hospitals and training schools. The spirit of criticism sometimes manifest in large hospitals on the part of the hospital managers, the attending staff, and the managers of the training school is to be deprecated. Each department is inclined to see the defects of other departments. What is needed rather is a spirit of forbearance, charity, and fair dealing to attain mutual aims in every direction. If the governing principle of the independence of all departments of a hospital, coordinated through the superintendent under the board of trustees, can once be generally established, the main source of trouble may be removed.

HENRY M. HURD.

THE UNIT DRESSING PACKAGE

A Simple Plan That Will Afford Dressings to Meet Any Case—Asepsis and Uniformity the Main Objects

BY CARL E. BLACK, B. S., A. M., M. D., Jacksonville, Ill.

In visiting hospitals for the purpose of observing the details of surgical work, I have been impressed with the lack of uniformity in the methods of preparing and handling surgical dressings. The plan most frequently observed is that of having the dressings in jars or other broad-mouthed receptacles, from which they are taken with forceps as required. Very little objection can be urged against such a plan if the dressings are always kept in the receptacle in which they were sterilized, always kept covered, and always handled by one person, who, of course, must be thoroughly trained in surgical technic; even then there is a possibility of contamination from one patient to another.

Not infrequently one sees that the dressings have been transferred from the container in which they were sterilized to a receptacle in which they are to be used.

lem of a scrupulous technic which will prevent infection of other wounds in the same patient or wounds in others. Care must be taken that none of the secretions come in contact with clean hands, dressings, or other things which may reach other wounds. Not infrequently soiled dressings or secretions are dropped on the floor, or come in contact with clothing or other things from which they may infect others. Much greater care in the details of technic necessary in pus cases than in clean ones should be constantly impressed on all who dress wounds.

In order to overcome some of the difficulties and objections to certain methods in vogue, and to make dressings safe from the possibility of contamination, we have devised what we call the unit dressing package. In many dressing rooms the technic seems to be based on the mistaken idea that if a wound is infected it is unnecessary to take particular care in its dressing. As a matter of fact, it should require greater care to properly handle an infected wound, abscess, or ulcer than a clean one. Because a wound is infected with one pyogenic organism does not



Fig. 1. Finger sponges and method of making them from one-sixteenth yard of gauze.

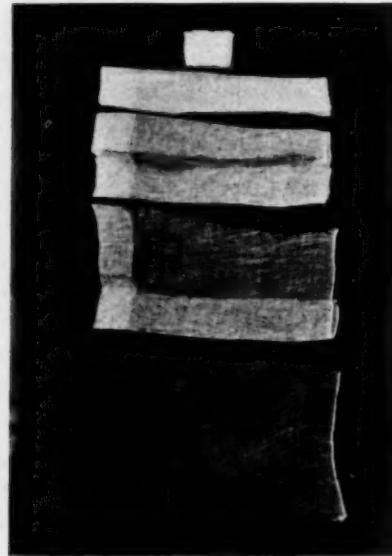


Fig. 2. Small dressing and method of making it from one-eighth yard of gauze.

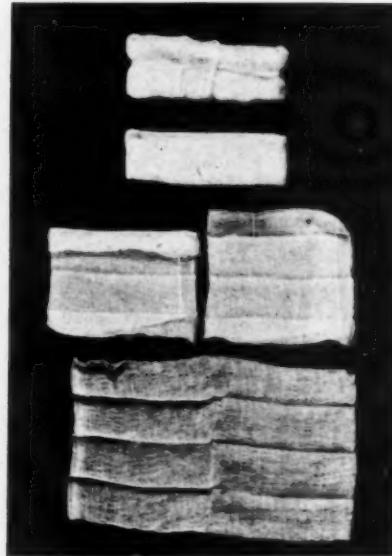


Fig. 3. Large dressing and method of making it from one-fourth yard of gauze, and supplementary package containing four large dressings.

ized, and that they are used by numerous nurses and doctors for as many different purposes. Under such circumstances the dressings can never be relied on to remain sterile, and no surgeon would accept them in his operating room service.

There is a general disposition to give the dressing of wounds a secondary position entirely inconsistent with its fundamental importance. The instruction of nurses and assistants is indifferent. The surgeon is frequently seen to abandon the case before the wound is closed, and usually he gives little or no attention to the dressing of the wound. It is in septic cases that we see the most carelessness in dressing. Not infrequently we observe the greatest care and precaution in making the first dressing in a clean abdominal case which is completely healed throughout and which it would be practically impossible to infect, while a drainage case in which there is a large quantity of pus is left to inexperienced hands, or is handled in a careless and indifferent way. Some seem to think an infected wound does not require the care that should be given a clean one, while, as a matter of fact, the pus wound requires all the attention necessary to a clean wound to prevent mixed infection, and it presents the additional prob-

give the dresser license to allow it to become contaminated with other pyogenic organisms or with germs of some specific infection. The fundamental element in the progress of handling septic wounds is "surgical cleanliness." Sterile hands, sterile field surrounding the abscess or ulcer, sterile solutions, applications, and dressings have been the ultimate achievements of listerism. Any method which makes for these conditions will bring a more prompt healing and an absence of complicating infections to septic as well as clean wounds.

By our plan each patient has a package which is adapted to his needs, the packages are kept sealed until the moment they are required for use, and none of the contents are used for a second patient until resterilized.

The unit on which these packages are based is 1 square yard of gauze and 1 pound (16 ounces) of cotton. The packages are divided into four sizes. In addition to this, there are two supplementary bundles. Each package consists of a muslin cover, a pad of cotton (which is protected by one layer of gauze), finger sponges, small dressings and large dressings.

For example, 1 pound of cotton makes 64 No. 1 pads (Fig. 4) of equal size, or 32 No. 2 pads of equal size, or

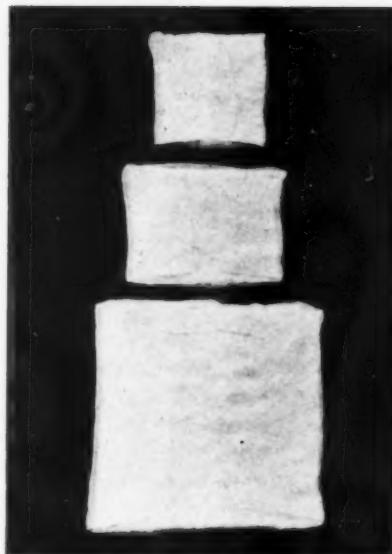


Fig. 4. No. 1, No. 2, and No. 3 cotton pads in gauze covers.

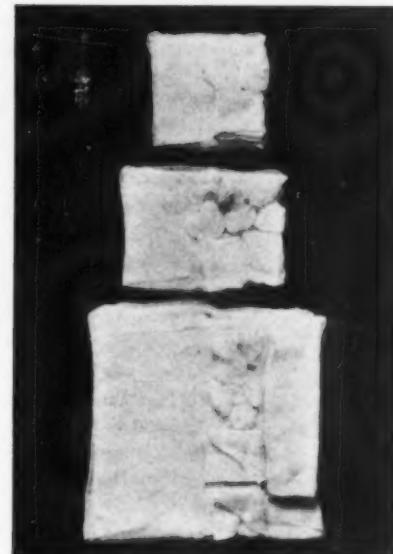


Fig. 5. No. 1, No. 2, and No. 3 dressing packages, with finger sponges and large and small dressings in place ready for muslin covers.

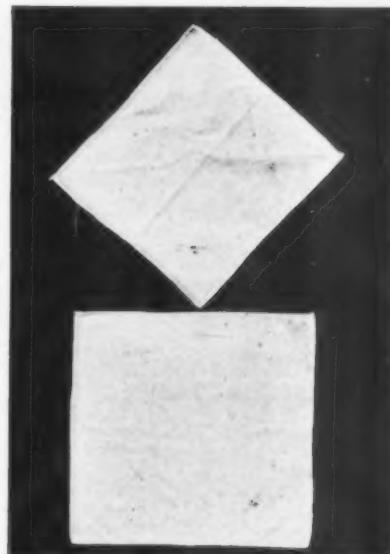


Fig. 6. No. 1 (12x12 inches) and No. 2 (16x16 inches) muslin covers ready to receive the dressings.

16 No. 3 pads of equal size, or 8 abdominal pads of equal size. A yard of gauze will make 16 finger sponges (Fig. 1) of equal size, or 8 small dressings (Fig. 2) of equal size, or four large dressings (Fig. 3) of equal size. The No. 1 and No. 2 bundles contain a pad of cotton, finger sponges,

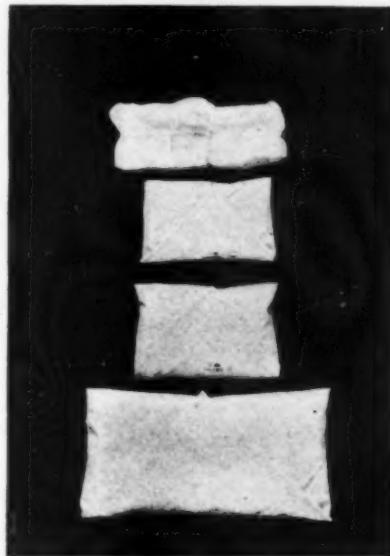


Fig. 7. Supplementary dressing package and No. 1, No. 2, and No. 3 dressing packages folded and pinned ready for sterilizing.

and small dressings (Fig. 5). The No. 3 bundle contains a cotton pad, finger sponges, small dressings, and large dressings, while an abdominal bundle contains a heavy pad, large dressings, and a binder. There are two small

bundles, with which, in special cases requiring unusual amounts of dressings, any of these can be supplemented. Each package has its own muslin cover (Fig. 6), which is marked with its number.

To go more into detail: A No. 1 package (Fig. 5) has a muslin cover 12 x 12 inches, marked "No. 1." This cover contains 1 cotton pad of $\frac{1}{4}$ ounce of cotton; 3 finger sponges, each having $\frac{1}{25}$ yard of gauze; and 4 small dressings, each made of $\frac{1}{8}$ yard of gauze.

The No. 3 package has a muslin cover 20 x 20 inches. This cover contains 1 cotton pad of 1 ounce of cotton; 6 finger sponges, each containing $\frac{1}{25}$ yard of gauze; 6 small dressings, each containing $\frac{1}{2}$ yard of gauze; and 4 large dressings, each containing $\frac{1}{4}$ yard of gauze.

The abdominal package contains 1 cotton pad of 2 ounces of cotton; 6 large dressings, each containing $\frac{1}{4}$ yard of gauze; and an abdominal binder. The binder may be used as the cover, or a separate cover may be provided.

In addition, there are two supplementary bundles, one containing 6 small dressings, each made of $\frac{1}{8}$ yard of gauze, in a muslin cover 6 x 6 inches, and the other supplementary bundle consists of 6 large dressings, each made of $\frac{1}{4}$ yard of gauze, in a muslin cover 8 x 8 inches.

One of the important features of these bundles is the manner of placing the supplies in the covers. The accompanying illustrations will greatly assist the word description. The supplies must all be put in the cover in the same way each time, in order that those handling them may open them properly without danger of contamination, and so that the various articles will be presented to the one doing the dressing in their proper order. The surgeon or nurse making the dressing does not always have



Fig. 8. a, nurse holding package ready to break the seal (remove the pin); b, first movement in opening package; c, second and third movements; d, fourth movement and package open ready for surgeon or dresser.

the assistance of a trained person, and, by having the packages uniformly built, a novice can be shown how to open the package without contaminating the contents.

The cotton pad is first laid down on the cover (Figs. 5 and 6), with its corners pointing to the center of the sides of the cover, so that the corners of the cover are folded in, and the last one comes over the center of the package when it is pinned and acts as a seal. The finger sponges are placed on one corner of the pad and made to occupy

knows just the position which the supplies will occupy when the package is opened. The finger sponges and dressings (small or large) are the parts which come in direct contact with the wound and from which infection from contamination of the dressing is most likely to be received. For this reason these are completely covered by the cotton pad, which protects them in much the same way that the cotton plug or stopper protects the sterile broth or serum in the test tube (Fig. 8). The package is opened by removing the pin, which, after sterilizing, makes a good seal; that is to say, it is easy to tell by the condition of the pin and the muslin around it whether the package has been opened since it was sterilized. No package from which the pin has been previously removed should be used.

The package is taken on the hand, the pin removed, and the corners turned back in the reverse order from that in which they were put up, and the dressings exposed without the least danger of contamination. If the first package used does not contain sufficient material for the needs of a particular dressing, a small supplementary package or a large supplementary package may be used in addition. A case may require two or more packages. If the package contains more supplies than necessary, the material which is not used is saved and made up into new packages for the next sterilizing. Of course the covers are used repeatedly until worn out by sterilizing. In a



Fig. 9. Tin container in dressing room for supply of dressing packages, etc., and having on the lid printed directions for using and preparing the packages and other articles.

one-fourth of the pad, and the small dressings are placed on the adjoining corner and also occupy one-fourth of it, the two together occupying one side and one-half of the area of the pad. The pad is then folded over in the middle, so that the finger sponges and dressings are inside the pad. The cover is then folded over in such a way (Figs. 7 and 8) that first the corner nearest the finger sponges and small dressings is brought over to the mid-

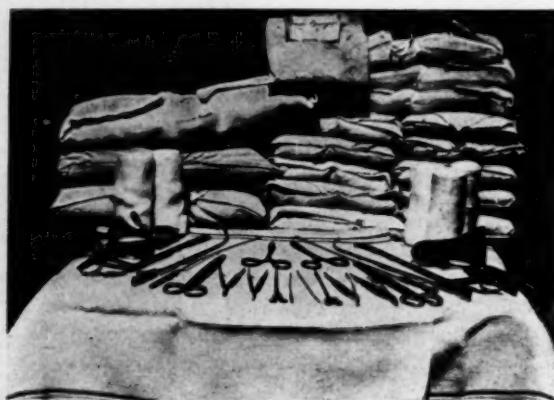


Fig. 10. Dressing packages on side table. Three of them open for use.

dle of the pad, and then one corner is brought across the pad from the end and then another across the other end, and finally the fourth corner is brought over and held with one pin, so that the pad and dressings are completely incased in the cover in such a way that they could not possibly become contaminated. It is then ready to be sterilized.

Each package, of whatever size, is folded on the same plan, so that the nurse or doctor in taking it into his hands



Fig. 11. Equipment of dressing packages, supplies, and instruments for ordinary use in a dressing room.

factory where they are prepared for such work, the muslin pad could be replaced with an oiled paper cover and carton, although our experience would suggest that the soft muslin cover will take up less room and will do away with any loss from unused portions of the package, which are always saved for new packages for the next sterilizing.

It is a great advantage to the surgeon or nurse making a dressing to be able to select or call for a package by number and know exactly the form, size, and position of each article of its contents. Such a plan is easily taught and learned, and secures uniformity of method (Fig. 9). The plan so frequently seen in hospitals of numerous forceps and fingers being dipped into broad-mouthed jars or boxes is pernicious. Such methods tend to demoralize technic and fail to impress on nurses and assistants the great importance of preventing infection in clean wounds and the danger of mixing infection in those already having a single infection which we are seeking by our dressings to eliminate. The handling of dressings by physicians in their office, at the bedside in the home, or at the place of primary dressing in the case of accidents is almost uniformly bad. It is only the exceptional physician or surgeon who has worked out a technic for such occa-

sions, yet we probably all agree that the primary dressing is the most important event in the treatment of every wound.

Our effort has been to develop a single plan which will be simple and easily prepared, and at the same time will be adapted to use in the hospital, in the home at the bedside, or for the street and roadside emergency.

At the hospital and office, in addition to the packages of sterile dressings, instruments, basins, towels, and other accessories are kept sterilized and ready for use (Fig. 10). All of these things are put up in muslin covers, and all, excepting the instruments, are prepared in the steam sterilizer. The instruments are put up in small bags, each containing the necessary instruments for one dressing, and sterilized dry in a formalin sterilizer. To meet the requirements of the daily routine, two varieties of packages have been found sufficient. The first contains one pair of scissors, one pair of thumb forceps, and one probe; the second, one vaginal speculum, one long uterine dressing forceps, one uterine sound, and one uterine applicator. One of these packages, or a combination of the two, will meet the requirements of the great majority of cases. There will always be a few cases for which special instruments will have to be prepared. The dressing room service will know how many routine dressings are to be made the next day, and enough packages of all kinds are prepared and ready, so that each case, whether clean or septic, has separate freshly sterilized instruments, basins, towels, dressings, and other accessories, and it is not necessary to use from the same package for any two patients. To meet the emergencies, enough extra packages are always ready. Special packages are prepared from day to day as required for special or unusual cases.

Since adopting this plan at the hospital, no surgeon has had just cause to complain of either a lack of properly sterilized supplies or that his patient might have been infected from some other patient which preceded his in the dressing room. Such instruments, basins, etc., as are required in the dressing room are not expensive, and there is no reason why every dressing room should not be abundantly supplied.

For a number of years we have kept quantities of the packages of dressings of all sizes on hand at the hospital and at the office, as well as in our emergency bags (Fig. 11). They pack compactly and take up comparatively little room, and one can be assured that they will remain sterile, as the part of the dressing which comes in contact with the wound is thoroughly protected by a layer of cotton on all sides. We have found them convenient and in every way satisfactory, and, in addition, they furnish a unit plan of making dressings which is a great advantage in teaching nurses and others how dressings should be made and what may be required for a dressing. We rarely ever require anything other than what we have in these bundles. Such packages are susceptible of infinite variation to meet the needs of the patient or the individuality of the surgeon without interfering with the unit principle on which they are based.

Patients in fifteen hospitals for the insane in New York State average 47.10 years of age, according to figures which have been compiled in connection with the recent state census. The average age of first admissions was found to be 38 years. In 1911 the annual per capita cost of maintenance in the New York state hospitals was \$189.71; in 1915 it was \$210.89. Out of 6,265 first admissions in 1914, 3,301 were found to have no family history of insanity, and the family history of 1,506 others could not be ascertained. The remaining 1,458 each had at least one insane relative.

LARGE DISTRIBUTION OF HOSPITAL FUNDS

New York Saturday and Sunday Association Pays Out Over \$136,000—Executive Committee Makes Recommendations

In the annual report of the Hospital Saturday and Sunday Association of New York city, issued December 22, announcement is made that 120,990 patients were treated in the associated hospitals last year, and that of this service 73 percent was free to the poor. The executive committee, among other things, recommends that the name of the association be changed to the United Hospital Fund of New York. The committee also advocates these three propositions in its report:

A statistical bureau that would collect, digest, and disseminate significant facts regarding the hospital facilities, activities, and needs of the whole city.

A practical handling of the dispensary problem, with a view to standardizing this great service, making it as effective as possible, and thus to some degree relieving the pressure on hospital service proper.

A study of workmen's compensation, with a view to the full utilization of voluntary hospitals and their just remuneration in connection with such cases.

The total contributions received during the year amounted to \$125,004.85, while the total disbursements aggregated \$136,372.25. The balance on hand on October 14, 1915, was \$4,557.66.

New York City's Free Antitoxin Distribution

The following table, which appeared in a recent issue of the weekly bulletin of the Health Department of New York city, gives some idea of the extent of the use of antitoxin, and is significant in that it shows an increased incidence of diphtheria in the boroughs where there had been a falling off in the use of free antitoxin.

	1913		1914	
	Valuation	Cases of diphtheria reported	Valuation	Cases of diphtheria reported
Free Distribution—				
Manhattan	\$ 53,494.75	6,113	\$ 42,283.50	7,927
The Bronx	17,507.50	2,035	17,074.00	2,409
Brooklyn	50,232.00	5,226	40,365.25	5,627
Queens	5,314.50	1,003	5,826.50	924
Richmond	1,346.75	158	1,994.25	198
New York city...\$127,855.50		14,535	\$107,536.50	17,129
Antitoxin sold	33,319.74		73,471.98	
Total dispensed...\$161,175.24			\$181,008.48	

Ohio Hospital Training-Schools Being Standardized

The new nurse practice act, which went into effect in Ohio on January 1, provides for registration of graduates in nursing who hold diplomas from a nurse training school in good standing connected with a hospital or sanatorium in good standing, as defined by the State Medical Board. The board has conducted a thorough investigation of all hospital training schools, and will in the future make periodic inspections of those recognized in good standing, to make sure that they are maintaining their course along the lines demanded.

By the will of Mrs. Martha A. Miller, of St. Paul, Minn., who died in December, \$1,000,000 in property and \$400,000 in cash are bequeathed for the erection and maintenance of a hospital in St. Paul as a memorial to Mrs. Miller's husband, the late Charles T. Miller. The size of the hospital is not stipulated, but it must contain at least 50 free beds. The trustees named to erect and manage the hospital are Wm. Dawson, 903 Goodrich avenue; Dr. J. T. Rogers; E. H. Bailey, president First National Bank; J. I. H. Field, of Field, Schlick & Co.; and T. D. O'Brien.



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Capacity of the Hospitals in the Principal Cities of Italy
(La degenza ospedaliera nelle principali città italiane).
Riv. ospedaliera, Roma, 1915, V, No. 20.

Official statistics show that the hospital accommodation of Milan is 4,028 beds; of Roma, 3,274; of Turin, 1,857; of Genoa, 1,488; of Venice, 1,483; of Florence, 1,030 beds. Bologna, Pisa, Brescia, Padua, Pavia, Catania, and Parma have each between 500 and 1,000 beds; fourteen cities have more than 300, and six more than 200 beds.

The New Hospital at Careggi, Florence (Il nuovo ospedale di Careggi, Firenze). Dr. Baldassari. Ospedale Maggiore, Milano, 1915, III, No. 8.

The city of Florence has decided to do away with its old and antiquated hospitals and to erect a large new hospital in the suburbs. A large area of land was acquired for this purpose at Careggi. Two pavilions for tuberculous patients have already been erected, one for men and one for women. These buildings are each 101 meters in length and contain two stories besides a spacious basement. The hospital, when completed, will have 18 pavilions for general diseases symmetrically located along a central street. Each building will be 108 meters long, and consist of two stories and a basement. Three pavilions will be erected for infectious diseases. They are to be located at a considerable distance from the other buildings, and will practically form a hospital for themselves. The new hospital is to be completed as early as possible, and will have room for 1,000 patients.

The Binet-Simon Tests. William Ravine. Lancet-Clinic, 1915, CXIV, No. 26.

The following conclusions are based on experience with various methods of measuring the intelligence of young children:

1. The Binet-Simon tests are the best and most systematic method for the measuring of the development of the intelligence of young children.
2. They are but one sign or symptom of the mental status of an individual.
3. Various factors or conditions can influence the replies and rating of the individual examined—namely, emotional states, indisposition, poor nutritional states, fatigue, etc.
4. Standardize as much as you will, the personal element in the rating cannot be eliminated.
5. In the hands of the inexperienced and untrained, and those lacking medical and psychiatric training and experience, if used to rate or stamp individuals as retarded or defective, they are defeating their purpose, and working an injustice on the individuals examined.

The Expenses of Managing a Mountain Sanatorium (Il costo di esercizio di un sanatorio in montagna). Dr. F. Gatti. Tubercolosi, Milano, 1915, VII, No. 11.

At the Philadelphia meeting of the International Association for the Protection Against Tuberculosis a committee was appointed to ascertain the average expenses of people's sanatoriums in the various countries. The superintendents of 115 of such institutions answered the set of questions sent out by the committee. The author compares the data furnished with those of the sanatorium of Prasomaso, Italy, which spent \$1.23 per patient per day. In Germany the average expenses in 38 institutions which replied to the committee was \$1.02. But in Germany many sanatoriums are located in the plains, and those in the mountains are reached by good roads or even by railroads. Electricity and drinking water are frequently furnished by neighboring towns or villages, all of which contributes to reduce the expenses of these establishments, though the living expenses are higher in Germany than in Italy. The French sanatoriums had the lowest expenses, as they amounted to only 80 cents per patient per day. In the sanatoriums of England each patient has his own room, which accounts for the high average expense—namely, \$1.50. While the expenses of mountain sanatoriums are higher than those of lowland sanatoriums, experience has shown that the mountains are more favorable to a permanent cure of pulmonary tuberculosis than the plains.

Disinfection of the Hospital Trains in the Intrenched Camp at Paris (Desinfection des trains sanitaires dans le camp retranché de Paris). Dr. Bordas. Rev. d' hyg., Paris, 1915, XXXVII, No. 7.

All hospital trains coming from the front are disinfected at five stations in the suburbs of Paris, at Landy, Pantin, Ivry, Villeneuve-Saint Georges, and Batignolles. About 230 cars are daily disinfected at these stations. The disinfection is not confined to the destruction of microbes on the floor, seats, windows, etc., but extends also to parasites which are capable of transmitting infectious diseases. Among these parasites, pediculi are the most dangerous, as they are the carriers of typhus fever. The cars are first swept clean of all refuse, straw, rags, etc., which are burned; then they are thoroughly washed and scrubbed with a hot lye solution, the alkaline liquid penetrating into all the cracks of the floor, seats, etc. For the final disinfection a solution of hypochlorite of calcium is used. By means of a Bertrand apparatus a strong spray of this liquid is forced into all the cracks and recesses of the car, and, when the air in the car is filled with the vapors of the solution, it is tightly closed and remains so for twenty-four hours.

Surgical Specialties in Hospitals. Paul Thorndike. Boston Med. and Surg. Jour., 1915, CLXXXIII, No. 23.

A special genitourinary service was organized about a year ago at the Boston City Hospital. Every other genitourinary case, male or female, is admitted to the fourth surgical service of twenty beds devoted exclusively to the care of urological cases; the other half distributed among the three other surgical services, that these may not be entirely deprived of their genitourinary cases. The experiment, although it has not created an ideal special department, has provided the hospital with an adequate urological service from both the patient's and hospital's point of view. It has, further, made a teaching unit which can utilize its material adequately for medical school purposes. The writer intimates that this urological service, steadily progressing in interest and value, may quite possibly be the forerunner of similar services for other branches of surgical work.

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DEPARTMENT OF NURSING

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Please address items of news and inquiries regarding Department of Nursing to the editor of this department, Teachers' College, Columbia University, New York City.

An Administrative Problem—The Prevention of Typhoid Fever Among Nurses and Hospital Attaches

BY ELMER H. FUNK, M. D.

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The question of the health of hospital attaches, particularly that of the nurses, has always been a matter of deep concern to those in charge of nurses' training schools connected with both large and small institutions for the care of the sick. The frequency of contact, indeed the intimacy of contact necessary in the medical care of patients with infectious diseases, makes hospital attendants particularly liable to infection unless the greatest precaution is constantly observed. Fortunately the more contagious diseases, smallpox, scarlet fever, diphtheria, etc., are cared for as a rule in institutions employing only trained attendants. The general hospitals, however, care for a large group of diseases which, though not actively contagious as understood with reference to the previously named diseases, are nevertheless easily transmissible if constant precaution is not observed. Notable among these diseases is typhoid fever.

The frequency of typhoid fever among nurses has been noted by a number of observers. Joslin and Overlander found in six hospitals in Massachusetts during a period of five years (1902 to 1906, inclusive) that twenty-six nurses contracted typhoid while in training. They estimated at that time that the typhoid morbidity rate among nurses was 161 in 10,000 living, as compared with 20 in 10,000 living, for the general population. In other words, the hospital nurse in Massachusetts was about eight times as liable to contract the disease as the ordinary citizen.

Spooner, in an investigation carried out at the Massachusetts General Hospital in 1909, found that during the preceding ten years twenty-seven cases of typhoid fever were contracted in the hospital. Of this number nineteen were in nurses.

Pierce found at the Winnipeg General Hospital that during the ten years prior to 1911 seventy-one cases of typhoid occurred among the attaches, forty-eight of whom were nurses, an average of five a year. At the Johns Hopkins Hospital, from 1889 to 1906, according to McCrae, there were fifteen instances of infection among nurses, of whom eleven had been nursing patients with the disease. In our own investigation at the Jefferson Hospital, Philadelphia, it was found that during a period of fifteen years prior to 1912 fifteen cases occurred among nurses, or an average of one a year.

Typhoid fever in a nurse is usually the result of contact infection. Among our fifteen cases known contact was established in nine instances. The contact was of the nature of repeated exposure to infection in the direct

nursing of a patient or a group of patients with the disease. In the other six instances, definite recent contact could not be established, at least prolonged exposure to infection was not known to exist. It is impossible to rule out the casual contact which might occur, for example, in temporary relief duty in wards other than the regular assignment, or with carriers who are not known as such when they are admitted to the wards, or in the operating room or surgical ward in the surgical typhoid lesions.

The following case is of interest as illustrating contact infection of a nurse from a patient in the surgical service. Miss X. was on duty in the men's surgical ward, which contained a patient who about three weeks before had been admitted and operated on for typhoid perforation. After the operation a fecal fistula developed which required frequent changes of dressings. During the day this duty was performed by the intern and at night by the nurse. The nurse was informed of the care to be exercised with regard to wearing of gloves, cleansing of hands, etc. In about two weeks she was taken with a severe attack of typhoid fever, with profound toxemia and many hemorrhages, and for a while it seemed as if she would probably succumb to the violence of the infection.

The importance and frequency of contact infection, therefore, must be fully realized in the effort to prevent the disease among hospital attendants. The pupil nurse should not be allowed to care for these patients until she has been thoroughly instructed with regard to the disposal of the excreta, the disinfection of the linen, nursing utensils, etc., and the scrupulous cleansing of the hands following every handling of the patient. Where these precautions are exercised typhoid fever ought not to be a menace to the health of the nurse. As a matter of fact, however, it is to be regretted that carelessness occurs and in a measure accounts for the frequency of the disease among them in the past.

It would seem, in view of Pierce's statement, that ninety percent of all cases are contracted in the first and second years of training, that it is not wise to entrust the nursing of typhoid patients to pupil nurses in the early part of their course. In our experience among fifteen nurses, nine were ill during the first year of training; four during the second year and three during the third year.

That carelessness, however, is not limited to pupil nurses is evidenced by Spooner's finding that during the ten-year period when nineteen pupil nurses contracted the disease, twelve graduate nurses were admitted to the hospital during the same time. However, if there is one lesson which the past should teach us it is this, that the first instruction given to the training school matriculant should cover those principles of preventing disease spread which must be enforced unceasingly if contact infection is to be avoided.

In the effort to reduce the frequency of typhoid among hospital attendants several of our foremost institutions took up several years ago the question of the prophylactic inoculation of typhoid vaccine as practiced so successfully in the military service of the United States and the other countries of the world. Lack of space forbids the recital of the remarkable results which have attended the use of the vaccine among the troops. Medical literature, which is easily available, reveals a rapidly increasing mass of evidence. Those hospitals which were pioneers in the use of antityphoid vaccination among nurses are beginning to realize the infrequency of the disease among them as compared to the days before its use. At the Winnipeg General Hospital, where inoculation has been practiced for three years, only one doubtful case occurred, and one other case in the only nurse who refused inoculation.

In July, 1912, the prophylactic inoculation of all nurses in training at Jefferson Hospital was made compulsory. Since that time, and during a period of three years, only one doubtful case has occurred. In this instance a mild febrile disturbance of about two weeks' duration occurred in a nurse who had not been in known contact with a typhoid patient, and who for some time had not been feeling well. Headache, anorexia and malaise had been present for about two weeks. The temperature on admission, April 1, was 100, pulse 92 and respiration 24. A few suggestive spots were seen upon the abdomen. Splenic enlargement was not demonstrable. At the end of fourteen days fever subsided and convalescence was rapid. The leucocyte counts on April 2 and 14 were 8,400 and 8,200, respectively. The blood culture, April 6, was negative. The Widal test performed on April 2, 14 and 30, was reported as "marked cessation of motility with slight agglutination, suggesting a faintly positive reaction."

Almost without exception it has been found in those hospitals where prophylactic immunization is practiced that the incidence of the disease has been reduced. In a previous article, which appeared in the *New York Medical Journal*, September 4, 1915, the writer tabulated the replies which he received to a questionnaire addressed to a number of large hospitals in ten of our large cities. From the facts so obtained it was evident that there was an increasing tendency to the use of antityphoid vaccination, although but few institutions made its administration compulsory. All these institutions, however, would probably be unanimous in their views with regard to vaccination against smallpox. Why not against typhoid fever? The harmlessness of antityphoid inoculation compares favorably with that of vaccination against smallpox. In our experience the majority of individuals experienced no inconvenience whatever; the most frequent disturbance was a transient soreness at the side of injection. A few had slight constitutional reactions, such as headache, malaise, and a rise of temperature to 99.5° or 100° F. for a few hours. Probably less than one percent were incapacitated for work, and then only for a day.

In conclusion I think we are justified in saying that a wider application of antityphoid immunization among nurses will result in a distinct reduction in the incidence of the disease among them; a reduction which has not been accomplished in the past by instruction in the application of sanitary measures alone. It should never be used with the thought of minimizing the importance of sanitary measures, but rather as an additional safeguard which experience teaches us is necessary, particularly among those who come in close and repeated contact with the disease.

The Bethany Methodist Hospital, Kansas City, Kas., has recently opened a new building, erected at a cost of \$200,000. This hospital will now be able to care for 150 to 175 patients, which will mean an increase of 100 to 125 beds over its former capacity. Dr. John McLean Moulder, formerly at the head of the Methodist Episcopal Hospital at Indianapolis, is superintendent of the new Bethany, with Miss Ethel Hastings as superintendent of nurses. Miss Vera Wederbrook is assistant to Miss Hastings, Miss Rebecca E. Galt has charge of the nurses in the operating room, Miss Ella H. Vanneman is obstetrical supervisor, and Miss Dilla C. Steiner is dietitian.

The New York city Department of Health has opened a new hospital for contagious diseases on the Black Stump road, between Jamaica and Bayside, Long Island. The building is of the mission type of architecture. It is three stories high, with a wide porch running entirely around it, and has over 20,000 square feet of floor space.

RULES GOVERNING AN OBSTETRICAL SERVICE

Kansas City General Hospital Fixes Rigid Technic for All Operations in That Department—Cleanliness and Vigilance Are Chief Aim

The following rules governing the obstetrical department of the Kansas City General Hospital have recently been promulgated by the attending staff, of which Dr. George C. Mosher is chief. It is suggested they may be of value to other hospitals:

These rules are adopted in order to secure a uniform routine technic and are to be followed as the Kansas City General Hospital method. It is not expected that every obstetrical emergency is met in so limited a space, but it is believed that by this means more beneficial results may be attained for the department and our patients.

RULES

Ninety percent of puerperal troubles are due to infection.

Intern in obstetrics is to be from clean surgical service. No intern nor nurse from isolation building, genito-urinary nor receiving ward is allowed to examine or deliver a woman in labor.

VISITORS TO THE DEPARTMENT

No visitors allowed in delivery room except obstetrician, anesthetist and nurses. No other interns nor physicians from other departments nor nurses who are on other service admitted to these wards; this rule is imperative. In operative procedures a limited number of physicians, interns and nurses are welcome as spectators. Street clothing must be covered by coat or gown furnished by nurse before visitors enter ward. No visitors, except near relatives, allowed in the wards, and these by permission of the office. Coats will be furnished visitors at the door, and must always be worn over street clothing while in the ward.

ON ADMISSION

The history of each patient is to be taken and a thorough physical examination made.

Pelvimetry findings of each patient to be recorded on admission to ward, blood pressure recorded within twelve hours. Urinalysis within twelve hours; every ten days thereafter while waiting; if pathological, oftener; if physical findings demand (i. e., condition of kidneys, circulation, and pelvic measurements) notify Attending.

PREPARATION FOR LABOR

Bowels moved, by enema; sponge bath, vulvar hairs clipped or shaven, clothing changed; no vaginal douche, ante-partum nor post-partum, without consultation with Attending. Intern and clean nurse must wear sterile gloves while handling, dressing or examining patient; if soiled in the labor change gloves. In cleansing patient always scrub from anterior of vulva toward anus. Discard swabs. Beware bacillus coli. Notify obstetrician before using catheter, after ten hours' delay. Use of rubber catheter not desirable in normal labor unless pressure by delayed presenting part prevents voluntary voiding. If catheterization necessary, it is to be done by intern, not over once in eight hours; catheter to be used by sight only. Use of bed pan is recommended rather than having patient out to jar. Use every expedient before catheter.

Restrict vaginal examinations—each vaginal examination to be recorded with reason why it is done.

CHOICE OF ANESTHETIC

In absence of kidney symptoms, chloroform in perineal stage only; ether or nitrous oxide if prolonged labor, is to be preferred. Petuitrin never to be used except in delay of head on perineum.

Third stage of labor.—Grasp cord with hemostat just outside of vulva. When placenta moves out of uterus into vagina, hemostat drops two inches. Thirty minutes to be allowed for delivery of placenta unless it is voluntary.

REPAIR OF PERINEUM

First degree by intern—beyond this call Attending. Material: Internal, chromicized catgut; external, silk-worm gut. Be sure to grasp torn ends of muscles, not a skin closure, which is not a repair of tissues. Repair of cervix not to be done except for arterial hemorrhage. Call Attending; if excessive hemorrhage, in emergency, vaginal pack is advised, and condition of patient watched by intern until she is safe, or Attending arrives to decide as to repair. When patient's pulse is under ninety put in Fowler's position.

Before cutting cord, wait five minutes after delivery of child. In asphyxia use tubs, hot and cold; artificial respiration, oxygen. Carefully examine for abnormalities before turning infant over to nurse.

ROUTINE CARE OF NEW-BORN

Cleanse eyes and instil Ag. No. 3, by dropper; use one percent. Follow with salt solution to remove excess. Rinse but do not wash mouth with swab. Dress cord with salicylic acid one part to starch five parts, after application of alcohol to stump. Binder snug, not tight, chest expands one inch first twenty-four hours. Plenty of water; always hold bottle while baby drinks. Weight, temperature and b. m. to be recorded daily. Do not massage infant's breasts. Apply binder. Nursing new-born infants during first two weeks should be at three-hour intervals, except in very robust infants, when four hours is preferable. Bottle must be held by nurse, not propped, during feeding. Nursing at breast ten minutes each feeding. Weight before and after feeding to be recorded. Average child loses one-fourteenth weight first seven days, then gains four ounces a week. Wassermann of new-born to be made and recorded in each case.

OPHTHALMIA NEONATORUM

If pus in either eye, notify Attending, and isolate the baby. Take smear for laboratory.

Circumcision.—Not to be done unless ordered by Attending Obstetrician—then by consent of parents.

In placenta previa, eclampsia, or post-partum hemorrhage, notify Attending.

EMERGENCY IN HEMORRHAGE

Elevate foot of bed, grasp fundus, knead to contraction. Hot douche 110 to 115 F. Hot cloths to limbs if cold. Petuitrin 1 cc., or ergot 1 cc., hypo—the latter only after uterus is empty. Watch patient while pulse is over 100. Have ready soda solution for hypodermoclysis, or saline solution for proctoclysis; camphorated oil, caffeine and strychnine if urgency demands.

EMERGENCY IN ECLAMPSIA

Routine Treatment.—Blood pressure daily, milk diet; emergency treatment; purge; hot pack; cold cloths to head; fluid extract veratrum if pulse over 100. Sodium bromide gr. 40 and chloral gr. 20 by enema if convulsions threaten.

Repeat in two or four hours as indicated by restlessness. Folded napkin or clothespin between teeth to prevent tongue being bitten. No chloroform nor morphine in eclampsia. Remain with patient and call Attending, on first symptoms of convulsions, unilateral headache, epigastric pain, disturbed vision, or blood pressure over 140. At onset of eclampsia give calomel gr. X, or croton oil gtt ii on sugar well back on tongue. If patient does not swallow use gavage. Do not restrain patient except to prevent injury.

SEPSIS IN MOTHER

Note following indications:

- (a) Headache.
- (b) Insomnia.
- (c) Anorexia.
- (d) Sudden diminution of flow.
- (e) Rapid pulse (over 100).
- (f) Temp. over 100 after 48 hours.
- (g) Tenderness over uterus.

As a general rule any patient having temperature of 100 1/2 F. forty-eight hours following delivery and after thorough emptying of bowels, is to be isolated and not returned to the ward until temperature is normal forty-eight hours. A thorough bath, washing of hair and complete change of clothing must be ordered for her.

ROUTINE TREATMENT OF ABORTION

Expectant plan recommended; no curette unless ordered by Attending Obstetrician. Fowler's position unless pulse over 100. Sterile packing cervical and vaginal for hemorrhage.

GENERAL RULES

All house officers, nurses and pupils must remain standing in the presence of an attending surgeon or the superintendent, and shall under no circumstances sit upon the beds or hold conversation with each other, either in the operating rooms or on official rounds.

Rounds shall be made each morning, those present being the intern and ward nurses. Rounds will begin in the ante-partum ward, then in the general wards and lastly the babies' ward.

Each case shall be examined in the following order: head, neck (goitre), chest, abdomen, extremities, vulva and pad.

The intern will dictate his observations to the nurse, who will write them in the history, which notes when finished will be personally signed by the intern. The intern will then give such instructions to the nurses as are necessary.

Charts must not be removed from the hooks except for observation or making notes on regular rounds.

The intern will be held responsible for his prompt attendance upon all cases reported from the office for admission to the ward. In case he cannot leave any case that may be in process upon his floor, he must immediately notify the office, which will in turn notify the superintendent, who will call a substitute from a clean service.

The same proceeding will be carried out in regard to ambulance calls.

All obstetrical operations will be performed in the fourth floor operating room when possible. The persons permitted to see these operations will be:

- (a) The resident staff, when not needed for their own duties.
- (b) Any pupil or nurse from the junior and senior classes, not in attendance on infectious cases.
- (c) Outside physicians holding cards.

Diet of Lying-in.—Cup of tea or glass of warm milk soon after delivery if no nausea or anesthetic. First day: liquid diet—milk, milk toast with tea, coffee or cocoa; three or four-hour intervals. Second day and third day: simple soups, meat broths, soft-boiled eggs, boiled custard. After third day: light diet—scraped beef, mutton, chicken in small quantities, baked potato, rice, cereals. By fifth day, general diet with nourishment, milk, cocoa, or broth between meals.

Period of lying-in is to be governed by disappearance of red and brown lochia, not by number of days; may be eight days, may be twenty-four; involution to be watched by height of fundus and patient treated as an individual.

Final examination and signed report to be made by intern in each case before discharge of patient from ward. Note involution, condition of cervix and perineum, also general state of both patients.

In normal puerpera discharge will be on twelfth or fourteenth day. In presence of complications in puerperium, date of discharge will be delayed, and decided by attending obstetrician.

INFORMATION ON LEGISLATION WANTED

**Chairman of the Committee on Legislation American Hospital Association Ready to Work and Wants Help
—Everybody Please Respond**

Dr. H. T. Summersgill, chairman of the Committee on Legislation of the American Hospital Association, addresses the following letter to the hospital people:

December 17, 1915.

Superintendent of the Hospital:

In presenting the report of the Committee on Legislation at our next convention, I desire your cooperation in securing the following information for this committee, which you recognize will be of advantage to all the members of our organization:

All new state laws enacted in your state since January 1, 1915, which are of interest to hospitals and institutional workers. This information can easily be secured either from your secretary of state or from some law library in your state. I desire to know also if you have any law governing the working time of your employees or nurses—that is, whether you are limited to an eight-nine- or ten-hour day. If you do have a law regulating the length of time of employment, reducing it to eight or nine hours a day, is it of advantage or disadvantage to your institution?

It will be desirable not to make this report until the first of April in order to cover legislation up to that time. As legislation is a matter of very great importance to all hospitals and institutions, your cooperation in this matter will be of great assistance, not only to the association members, but to all institutions, and I especially request that this matter be given special attention.

H. T. SUMMERSGILL, Chairman.

Y. W. C. A. Clubhouse for Nurses

The central clubhouse for nurses under construction in connection with the Young Women's Christian Association, on East Forty-fifth street, New York, will be thirteen stories high, and contain 218 single and 18 double rooms in addition to offices, library, rest rooms, dispensary, reception rooms, a sewing room, tea room, cafeteria, and roof garden.

Dr. Beverly Randolph Tucker opened a private sanatorium at Madison and Franklin streets, Richmond, Va., in January. The institution occupies the General Bradley T. Johnson mansion, which was purchased by Dr. Tucker at a cost of \$70,000 and remodeled.

PHILANTHROPY AND THE PUBLIC HEALTH

Conducted by THE NEW YORK ASSOCIATION FOR IMPROVING THE CONDITION OF THE POOR.

BAILEY B. BURRITT, General Director.

WILLIAM H. MATTHEWS, Director.

Department of Family Welfare.

DONALD B. ARMSTRONG, M. D., Director.

Department of Social Welfare.

Please address items of news and inquiries regarding Philanthropy and the Public Health to the New York Association for Improving the Condition of the Poor, 105 East Twenty-second street, New York City.

Impeaching the Sneeze BY HOLLAND HUDSON.

A sneeze, says Webster, is "a sudden, violent, audible, spasmodic expiration through the nose. It is usually a reflex act due to irritation of the nasal branches of the fifth pair of cranial nerves." Webster's definition is conservative, for the sneeze is also one of the most potential means of spreading respiratory diseases. German experimenters, with their characteristic thoroughness, recaptured test organisms nine meters away from the sneezer



First prize poster. Three-color work by a girl in the eighth grade. One of the poster stamp designs.

and his paroxysm. But how can you interdict "a reflex act due to irritation of the nasal branches of the fifth pair of cranial nerves?" Would you indicate the excision of these nerves? Would you insist on a voluntary inhibition of the reflex? Would you establish a safety zone of nine meters? Or would you rely rather on prophylaxis in the form of a handkerchief?

The Bureau of Public Health and Hygiene of the New York Association for Improving the Condition of the Poor decided for handkerchiefs. They propose to popularize the handkerchief as a conscious prophylactic against respiratory diseases. A "Watch Your Sneeze" campaign was planned by Mr. Philip S. Platt, superintendent of the bureau, with a premonition of its comic possibilities. The opening gun of the campaign, which is now carried on officially by the Department of Health of New York city,

was a poster competition for elementary school children. Twenty-four cash prizes were offered for the posters which best expounded the potential danger in sneezes and extolled the advantages of the handkerchief. Designs were submitted by five hundred children. Almost every school in Greater New York was represented. The children "got" the idea and got it quickly. They drew pertinently and



Another prize winner.

well. Some of the designs are reproduced in the accompanying illustrations.

The first prize winner is to be reproduced as a three-color poster stamp, which, with another stamp by Reinold Reiss, of the Society for Modern Art, will be supplied at cost to health officers and social agencies throughout the United States.

The first newspaper notice of the poster awards was a chortle from "header" to last line. But it sowed winged



A melodramatic view of the subject.

seed. Overnight the sneeze had become city "news copy" in New York city. Reporters besieged the commissioner of health and his aids, and their illustrated interviews were given first-column positions and catchy "headers" by the editors. New York's clever "columists" and their "contribs" took up the idea and rhymed new couplets and quatrains about it. Editorial writers turned on the subject the searching white light of their omniscience.

The Department of Education, pleasantly surprised by the work submitted in the poster competition and alarmed at the growing number of absentees from respiratory af-

fections, sent out circulars to school principals, instructing them to condemn the dangerous sneeze and to laud the protecting handkerchief.

The posters submitted have been made into a traveling exhibit, whose itinerary will make it possible for every public school pupil in New York to read five hundred versions of a sneeze "J'accuse." Thousands of the three-color stamps from the prize-winning design will be distributed among New York school children.

The Bureau of Public Health and Hygiene, A. I. C. P., will gladly send stamps at cost to all health officers, social agencies, or physicians desiring to use them as defensive ammunition in resisting the prevailing epidemic.

KANSAS ORGANIZES HOSPITAL ASSOCIATION

Topeka Gathering Adopts Constitution Patterned After That of Ohio, and States Pretty Definitely What Kansas Hospitals Want

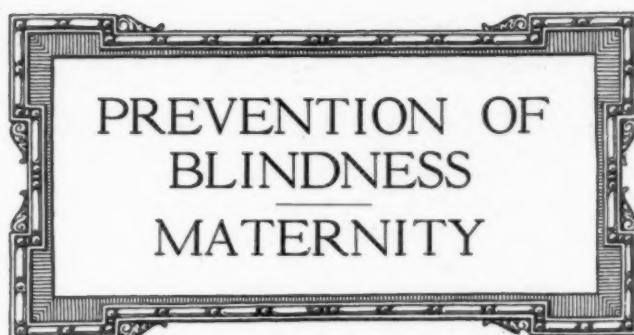
At the last meeting of the State Medical Society of Kansas some of the physicians who are connected with hospitals in the state got together and decided to organize a state hospital association. They appointed a committee to investigate the matter, to draft a constitution, and to call a meeting as soon as they were ready to report. This committee was composed of Dr. J. T. Axtell, of Newton; Dr. Sam Murdock, Jr., of Sabetha; and Dr. W. R. Dillingham, of Halstead.

The meeting was called December 30, 1915, at Topeka. Fifteen representatives were there. The report of the committee was heard and accepted, and a constitution patterned after that of the Ohio Hospital Association adopted. The first officers of the association are: president, Dr. J. T. Axtell, of Newton; vice-presidents, Dr. Samuel Murdock, Jr., of Sabetha; Dr. F. W. Shelton, of Independence; and Dr. J. C. Hall, of McPherson; secretary-treasurer, Dr. W. R. Dillingham, of Halstead.

The purpose of the organization, as stated in the constitution, is to promote economy and efficiency in the management of the hospitals in the state. Another purpose, which is not specified, but which is of interest to most of the hospitals, is to start a movement to have every hospital doing charity work exempt from taxation, whether incorporated as a charitable institution or not. It is planned also to raise the standing of the training schools for nurses, and to that end will adopt a standard equal to that of the American Hospital Association.

All of these things were freely discussed by all the delegates present and were fully agreed upon. During the afternoon session addresses were made; one by Harry C. Bowman, member of the State Board of Control, who has compiled statistics showing the amount of charity work done by the hospitals of the state and the amount of state aid given during the past year; Joseph W. Howe, secretary of the board, spoke of the work of the board and the appropriation of the state funds; Dr. J. J. Sippy, state epidemiologist, Dr. S. J. Crumbine, secretary State Board of Health, and W. J. V. Deacon, registrar of vital statistics, spoke of the work of their various departments and its relation to the hospitals.

At a recent joint meeting of the Maryland Lunacy Commission and members of the governing boards and superintendents of the several Maryland state hospitals for the insane, it was decided to ask the state Legislature for a total appropriation of \$1,409,800 for 1916, nearly \$1,000,000 of this sum to be devoted to the erection of new buildings.



Conducted by CAROLYN CONANT VAN BLARCOM, R. N.
 Secretary National Committee for the Prevention of Blindness;
 Chairman Committee on Prevention of Blindness and
 Midwives, National Organization for Public Health
 Nursing.

Please address items of news and inquiries regarding Prevention of
 Blindness—Maternity to the editor of this department, 130 East Twenty-
 second street, New York City.

The Need of More Efficient Obstetrical Care Among the Poor

BY DR. RALPH WALDO LOBENSTINE.

Mauriceau called pregnancy "a disease of nine months' duration." Engelmann, after comparing the labors of primitive and civilized people, says that "a simple, natural labor is no longer possible," and, further, "the parturient suffers under the continuance of an old prejudice that labor is a physiological act." The majority of thoughtful students of this phase of life agree that a function that kills thousands of women every year, that cripples many thousands more, that is responsible for a very large infant mortality, can hardly be called physiological. Of all the branches of medicine, the practice of obstetrics is the most exacting, the most poorly supplied with experts, the most open to criticism, and the most poorly paid.

In 1912 in the registered portion of the United States, which comprises from 60 to 65 percent of the population, 9,035 maternal deaths from parturition were reported. Inasmuch as these comprise only one section of the country, and inasmuch, moreover, as many deaths undoubtedly due to parturition are somewhat later reported under other diagnoses, the total number of maternal deaths amounts in all probability to between 15,000 and 20,000 annually. In New York state alone in 1913 there were approximately 1,300 deaths from the puerperal state; of this number 459 died of some form of infection, 285 deaths were due to labor, 169 deaths to medical causes complicated by pregnancy, and 319 deaths due to the toxemias of pregnancy. In the registered area of the United States the total annual mortality from septic infection has averaged since 1900 between 39.7 percent and 47.8 percent of the total number of maternal deaths. What a travesty in these enlightened days!

Moreover, approximately 50 percent of the gynecological operations are performed for injuries resulting at the time of labor—*injuries many of which are preventable—most of which could at least be fairly satisfactorily treated at the time of their occurrence or soon thereafter.* The truth is that we cannot estimate the number of partial or complete invalids who are invalids as results of either poor nursing, inefficient medical attention, or meddlesome midwifery at the time of miscarriage or at the time of labor. (This, of course, includes the first ten to fourteen days post-partum.) Furthermore, spontaneous and criminal abortions occur with astounding frequency. Many women have some criminal procedure carried out on every occasion of a suspected pregnancy. The great majority of

women have little or no care at such times. Thousands never recover their health, as a result of ignorance, thoughtlessness, and failure to grasp the real significance of an unnatural termination of pregnancy.

The most potent reason for the temporary success during the past year in the arousing of rather widespread interest in the so-called "twilight sleep" came from the fact that for the first time the public was brought to a realization of some of the trials and tribulations of the parturient. This was apparently one of the first occasions in which large groups of women became aware of conditions so prevalent in obstetrical practice in this country.

Turning to the new-born child or to the one as yet unborn, we find a state of affairs still more alarming—40 percent of the deaths occurring under 1 year of age are seen to take place before the end of the first month of life. The causes that bring about this high death rate are substantially the same as those we know to exist in the case of still-births. In both instances the mortality is largely dependent either on conditions affecting the mother during pregnancy or to accidents of labor. The chief exception to this statement is to be found in those infants that die from some intercurrent infectious disease, or some form of blood poisoning, in no way related to the condition of the mother. For the most part the causes of death during the first four weeks of life would appear, then, to be due, not to disease successfully attacking a previously healthy child, but to physiological unfitness in the newly born to maintain an independent existence. Two-thirds of these deaths may be ascribed to causes which suggest cell deterioration in the ante-natal stage, and find pathological expression in the various forms of immaturity.

Exact estimation of the relative importance of each "group of factors" is very often difficult, if not utterly impossible. We do know, however, that both intrapartum and intrauterine mortality can be greatly reduced by proper measures.

Actual death is one thing, but what about the child that lives for awhile or for many years immature in body and mind, or actually deformed? These are the really pitiful cases—the cases that make every thoughtful man and woman stop and think. These abnormal or subnormal beings are in part thus because of causes over which we have more or less control, and in part because of factors arising in the course of pregnancy or during labor over which we may at times be almost powerless—in general at least this is true.

The more readily understandable ante-natal causes are syphilis, alcohol, renal disease, sexual excess, marked use of tobacco, deficiency in the food supply of the mother, subnormal state of father at the time of conception, and bad physical environments during pregnancy. Of all these, syphilis is unquestionably the severest offender. J. Whitbridge Williams, in his study of 705 fetal deaths in 10,000 deliveries at the Johns Hopkins Hospital, showed most forcibly the terrific ravages brought about by syphilis in the early developmental stages of life—26.4 percent of the still-births were attributed by him to syphilis. He was, moreover, forced to believe from placental investigation that syphilis existed to even a larger extent than this figure would indicate. No doubt this high percentage was in part dependent on the large number of the colored race which he had as patients; nevertheless the percentage is very impressive. The less tangible ante-natal factors belong to the complex toxemias of pregnancy. These unquestionably are most potent in their damage to both mother and child, but so far in their relationship to the latter they have been largely overlooked.

Health statistics are particularly difficult to deal with

in this country because of the incomplete registration area. In the registered area existing today there are to be found fairly accurate mortality statistics, but the birth records are still incomplete and the still-birth records far from reliable. (Illinois, for instance, is not included in the registration area at all, as it has no vital statistics law). We have practically no record of the large number of abortions, spontaneous or induced, that occur annually. Even in our large hospitals the causes of still-births are very inaccurately determined. In numerous cases, as has been shown by Lee Thomas and a few others, the causes of death as they appear on the still-birth certificates, or, in fact, on the infant death records, are notoriously uncertain. In those states in which notification of births and still-births is practiced the time limit for such notification varies from three to ten days. Improvement in the statistics of still-births would be furthered by the adoption of some such law as the English "Notification of Birth Act," which requires notification to the local board of health within thirty-six hours of all births, still-births, and deaths. This, furthermore, is a distinct advance in the development of better medical supervision. Were it possible for a health officer to investigate at once all cases of still-birth and early infant deaths—not in a spirit of criticism, but in a spirit of helpfulness—many lessons could be learned that no doubt now are lost. This measure is now being carried out in New York city largely by trained nurses in the case of midwives.

According to the mortality statistics of the United States Census Bureau for 1911, approximately 63,000 babies died in the registration area before they had lived to be one month of age, and of this number more than 69 percent were estimated to have died of pre-natal causes or injuries or accidents at birth. These figures, I repeat, represent merely from 63 percent to 65 percent of the population. According to Mrs. Max West, of the Children's Bureau of Washington, if to this number were added the number of still-births occurring annually, we should have approximately 150,000 deaths of infants under one month traceable to conditions existing prior to birth or to the birth itself. These estimates reveal to us the enormity of the loss to the nation. To this loss must be added the great number of miscarriages, of which there are no records, and yet which, when spontaneous, are more or less dependent on the same causative factors as in the case of still-births and subnormal infants.

As I have stated above, we cannot accurately determine to what degree the estimated 120,000 to 150,000 still-births are due to intra-partum or ante-natal causes. Quoting Bacon, of Chicago: "We would probably find that from 60,000 to 70,000 of these die during labor as a result of the labor itself, and in the neighborhood of 15,000 more die within a week from labor as a result of injury at that time; that is, we should have about 80,000 annual deaths due to labor alone." Summarizing in percentages the causes of these intra-partum deaths, Bacon found that malpresentations were responsible for 30 percent; forceps operations, 30 percent; miscellaneous causes, such as *placenta pravina*, *ablatio placentalis*, ruptured uterus, toxemia of pregnancy, 15 percent; and pathological uterine contractions, 25 percent. In New York state, including New York city, in 1913 there were reported 228,713 births and 10,471 still-births. The following table of infant deaths under one month in New York state shows these still-births arranged according to cities of 100,000 or more.

State of New York.....	10,105
Albany	101
Buffalo	655
New York	5,108
Rochester	290
Syracuse	190

The ultimate blame for this high mortality of both mother and child is in general the following:

First—Insufficient training on the part of the physician.

Second—Insufficient remuneration for obstetrical work.

Third—Failure to properly license the midwife (progress along this line in certain sections is rapidly taking place).

Fourth—Ignorance and indifference on the part of the laity in matters concerning parturition.

Fifth—Lack of ante-natal care.

It is truthfully claimed that 90 percent of our American women are absolutely without pre-natal care. Of all the progressive countries, the United States is the most backward in this regard.

So far I have attempted to present to you a brief sketch of the obstetrical situation that is more or less general in this country. I will now ask you to consider with me some of the measures that seem necessary in order to diminish this large waste of life, to raise the standards of the community, and to promote individual health and well being. In passing, we should recall that approximately 40 percent of the labors throughout the country have been handled, in most part, by careless, surgically dirty, untrained midwives. A large percentage of the other 60 percent of the women have been in the care of physicians poorly trained in obstetrics, who have been graduated from the medical schools with a minimum amount of practical equipment for this branch of medicine. These measures are:

First, *the midwife*.—There are two prevalent views regarding this midwife question. According to the first view she is merely considered an abomination; an unmixed evil, having no reason whatever for existence; an individual who should speedily be thrust aside. For does she not produce innumerable criminal abortions; is she not responsible for much infant mortality, much puerperal infection, and consequently much maternal mortality? Does she not because of her wide practice deprive the doctors of approximately 40 percent of their legitimate practice? According to the second viewpoint, the midwife is considered not only an instrument for evil, but one for a considerable amount of good. She has had her "raison d'être." She certainly has done much good in the past, despite her all too frequent lack of education, her lack of cleanliness, her oftentimes low moral conception. The adherents to this view—and I am one of these—sincerely believe that as yet the time has not come in this country when they can be ruthlessly wiped off the slate. Those who hold this belief hope for their gradual elimination by compulsory registration, by raising the application standards, and by obliging them to pursue a prescribed course in some such school as the Bellevue School of Midwifery, or by accepting them only after a reasonable training with a physician in good standing, who himself is possessed of a fair obstetrical knowledge. In time the midwife may, I trust, be totally eliminated, but to eliminate her now would accomplish but little good, and would probably greatly increase the discomforts and sufferings of the poor women among whom they practice. No one can, I believe, honestly deny this statement. As I have just said, I for one believe in greater and greater restrictions, but as we restrict the practice of the midwife, so much the more are we obliged to give the poor parturient women something better in their stead. As Dr. Josephine Baker, of the Health Department, rightly says: "One of the great drawbacks to the speedy elimination of the midwife is the strong racial prejudice in her favor that exists so commonly among the foreigners."

Second, *the doctor*.—The disheartening conditions to be found among the doctors practicing obstetrics in this class

of the community are due to circumstances brought about partly by faulty training and partly by sociological conditions. If in many instances the doctor is no better than the midwife, it is not the doctor that is primarily at fault—unless he is guilty of criminal negligence—but the system of training, almost universally prevalent in this country, that has afforded him a scandalously small amount of practical obstetrical experience either before or after graduation. It is a severe criticism of the system existing in state and municipal government that has allowed any physician, no matter how meager his training, to practice obstetrics where so much is at stake and where he is forced to cope with great responsibility, forced to meet emergencies of very great severity, without having been in any measure whatsoever properly fitted for this work. And there is really no reason why the average man should be in the least degree competent to meet emergencies and abnormalities liable at any time to arise in the course of obstetrical practice, considering that the vast majority of our graduates have not had more than two to four weeks' practical training in this branch. Those men who, by choice or by fate, engage in confinement work among the very poor have my deepest sympathy. It is a singular fact that so much time is devoted in our medical schools and hospitals to general surgery and so little to practical obstetrics. The former the young graduate will need to a minor degree only, the latter to a far greater degree. It is indeed strange that but few of our fine general hospitals are willing "to be bothered" with confinement cases. Why is this so? Chiefly, I think, because they regard obstetrical cases more or less as nuisances, and do not appreciate the great importance to the community of the proper care of these patients under such circumstances. Certainly no one thing in life affects so many women as parturition, and yet almost to this day the "specialty" has not occupied any great amount of dignity in this country.

Third, *pre-natal care*.—We undoubtedly are all agreed, some more than others perhaps, as to the desirability—yea, the necessity—of increased facilities for the carrying out of this pre-natal work. The finest skill at the time of delivery may not, and frequently cannot, save the life of the child or even the life of the mother where pre-natal care has been insufficient or entirely wanting. For years in France, Pinard has been constantly urging the need of these pre-natal clinics. He was among the first to accentuate the importance of fatigue as a causative agent in premature births; an early advocate for making it possible for the wage earner to cease from her hard work during the last two or three months of pregnancy.

That the results more than compensate for the time, trouble, and money expended has been beautifully illustrated by the work of the New York Milk Committee, by the Women's Municipal League of Boston and the Boston Lying-In Service, recently by the New York Bureau of Child Hygiene, and by a number of other cities—Chicago, Buffalo, Baltimore, St. Louis, Milwaukee, etc.

It has been unquestionably shown that pre-natal care will prevent the development of a number of serious conditions likely to arise in the course of pregnancy, that it prevents many unnecessary maternal deaths, that it fits the patient better for labor, that it lessens invalidism, and, finally, that it has a tremendous bearing on the welfare of the infant. How are the masses to be reached? So far the work, while promising and excellent in character, has been of necessity limited in extent. The work needs to be greatly enlarged, not only in New York city, but in every city of the Union. In order to accomplish the most good, state and municipal authorities must be called on to take an active interest. The work must be free from

political prejudice or animosity, and the methods must vary according to the community engaged therein. In the city I can see but one practical method of solution, and this method will have to be modified according to whether there are medical schools to fall back on.

The plan suggested for New York city is briefly this (and the same general scheme can be carried out in other cities in which medical schools are located): The Board of Health would, according to this scheme, redistrict the city in such a way that each section thereof would be provided with an obstetrical clinic, the size of the district depending on the number of possible patients. The system should be such that there would be no overlapping either on the part of the new clinics or on the part of those already existing as hospital clinics, milk center stations, etc. This would involve, I am well aware, marked readjustment in the districts of several of these agencies existing today in New York. Each clinic should be affiliated with a definite hospital—that is, with the hospital in said district already doing obstetrical work, or in the one chosen to take charge of maternity cases referred to it. This custom is already carried on to a certain extent here in the city, but as a rule patients from the milk station clinics have been referred to one of several maternity hospitals rather than to one in particular.

The readjustment will require great thought, much tact, and every effort should be made to avoid friction and not to deprive the already existing clinics of material they may have built up by long and patient endeavor, unless ample assistance and opportunity be given them in the new field.

These clinics should conduct the actual labors in addition to the directing of extensive pre-natal work. In case of serious abnormality at any stage of parturition, the cases should be referred to the nearest hospital available for obstetric patients. The patients, both adults and infants, should be followed after labor until complete recovery has taken place. This would be true, however, only of normal cases. Where further treatment of the baby is necessary, or where the mother needs operative treatment or gynecological care, she should be given a card for herself or her baby to some definite gynecological or pediatric service, with a brief record of their cases to date. It would be well if from such time on there could be some systematic record kept, which would be in a sense a continuation of the history started in the pre-natal clinic.

STAFF

First—There should be one medical director, preferably a member of the Board of Health (either active or associate).

Second—There should be a medical chief assigned to each clinic.

Third—A resident nurse in each station. Further, sufficient nurses in each district to help with the work at the station itself, and assist the doctors in the homes of the patients. The assistant physicians to the clinics may be chosen from hospital staffs, medical schools, or from the physicians residing in any given district. These men would all work under the clinic chief in such a way that every station would have access to some competent, "willing" doctor, day or night. There is no doubt that in a number of the stations some of the neighborhood doctors would be glad to cooperate with the clinics and temporarily devote their services to the clinic for the sake of the additional knowledge to be derived from further experience in this field.

Fourth—A certain number of medical students should be attached to each station for as many weeks as possible,

such students being put on their honor to do conscientious work, and to help carry out the ideals fostered by those in charge.

Fifth—At present the educated midwife, under the close supervision of the district nurse, would prove of considerable value.

In cities without medical schools the same system is applicable, but it will present greater difficulties, inasmuch as there will be no student or faculty help to fall back on. The burden will rest entirely on the practitioner and nurse. Here, again, the midwife, when properly qualified, may be of considerable help.

This general plan will in the long run save money to the city, although the financing thereof at the outset will seem to offer many difficulties. Those not too poor to pay a small fee should do so. These fees should help defray the expenses of the individual clinics. Such a system would gradually extend its benefits to a large part of the poorer classes in the community; it would gradually and effectively eliminate the midwife; it would raise markedly the general average of obstetrical knowledge among the doctors who most need this experience; it would lessen maternal invalidism so commonly a result of poor obstetrical care; do away with a large amount of the evil results affecting the child as a result of immaturity or injury during labor. This would be a comprehensive plan for the guarding of infant life from the prenatal state through childhood to young adolescence. If carried out, it would offer a progressive, systematic scheme for the compilation of accurate statistics in this country. One more word in this connection: Each station might have on hand a list of doctors in the locality in which it is placed that are known to have had reasonable obstetrical experience, to whom patients able to afford to pay a moderate fee may be referred as private patients.

The American College of Surgeons has, as one of its fundamental aims, this very thing in mind—namely, the assistance it can afford the layman in case there is need of operative procedure. Why, in obstetrics, should the expectant mother, entirely ignorant of the medical status of individual physicians, not likewise be assisted in her choice?

In the country and small towns the problem is a different one. Here we are dealing with a great stretch of territory, with an often widely scattered population, with resources—in a measure at least—less accessible than in the city, with a lack of the assistance the city derives from the medical schools, with but scanty hospital facilities for those who cannot afford to pay for the confinement or who can afford but little. The obstetrical patient in the country is worse off, if possible, than her sister in the city. In case of any complications, the doctor is handicapped by distance, by lack of hospital facilities, by the difficulty in procuring helpful consultations. The patient, in turn, suffers seriously as the result of all this. The doctors—usually hardworking, honest, and earnest men—have a wide area to cover; their fees are small; they have but seldom efficient nursing. I think I am correct in saying that, despite the wonderful progressive spirit shown in certain scattered communities throughout the country, yet on the whole the spirit of "community interest," the sense of civic duty, is still quite lacking in a majority of our small cities, towns, and villages. (No offense intended.)

Our own state health authorities are endeavoring in all seriousness to solve some of the problems connected with the practice of obstetrics in the country. These endeavors, so far, have been performed somewhat limited in extent. The district nurses are increasing in number and are performing magnificent work.

In the country, as in the city, there is needed a health center in some form for every community. This health center should be the forum for the various problems in the community that arise in regard to health, either of the individual or of the community at large. Here the antenatal clinic would be centered—here much important instruction could be given. To my mind such a center should reside in a small, well-equipped, well-managed hospital—a county hospital preferably. It should be controlled by a board, nonpartisan and progressive, composed of a small number of men and women from the community in question, and should be under the helpful supervision of an officer of the State Board of Health. "Politics" would ruin such a plan, whether during the development thereof or at any future time.

These hospitals should be located where they can most readily serve the greatest number. They cannot be built without some local taxation, although this need not be heavy. But this cannot be accomplished without a thorough arousing of the community. Let the churches forget their differences and come together, let all the various local agencies unite, let there be a general awakening, and the "hospital education idea" will grow. I cannot see in what manner our state health officers can adequately cope with the problem peculiar to the small towns or country districts unless this "county hospital" idea can spread, carrying with it, as it does, a wider extension of the blessings of the district nurse.

With the increase in the supply of district nurses, the midwife question in rural districts will likewise gradually be solved, although, as in the city, she may yet be developed into a safe and necessary adjunct to the nurses and the doctors in their care of the needy.

My tentative suggestions in regard to improvement in the care of the poor during the child-bearing period will, no doubt, arouse criticism. They are, in truth, merely suggestions. Perhaps the hardest problem of all is the financial one. Dr. E. E. Munger, of Iowa, should be mentioned in this connection, for he was the first, so far as I am aware, to seriously advocate this "county hospital" idea. Although a pioneer in this line, he yet has been able to overcome most of the obstacles, even against the greatest odds. Dr. Munger's efforts were followed in 1911 by Dr. H. O. Hyatt, of Kingston, North Carolina. A year later the Munger law was passed in North Carolina, with some modifications. This idea is being put into operation by the state health officer, Dr. Rankin. In 1913 the Texas Board of Health passed a law requiring county hospitals in counties which include cities of 10,000 or more, and permitting other counties to build them. In 1913 Representative J. W. Canahan, of Kansas, passed a bill through the Kansas Legislature very similar to the Munger bill, applying, however, only to counties of less than 40,000 population. The law has likewise passed in Indiana.

Thus the movement is growing. Every state in the Union should adopt some public hospital system that will offer care to all the needy, and not merely asylums for the tubercular, or the epileptic, or the insane.

St. Anthony's Hospital at Oklahoma City, Okla., contemplates the early erection of a four-story addition. According to tentative plans, a medical research laboratory, to be devoted to the study of diseases peculiar to Oklahoma and the southwest, will be fitted up on the first floor. The second and third floors will contain accommodations for patients, and on the fourth floor will be located the diagnostic and surgical departments of the hospital. The laboratory will be in charge of Dr. A. Sophian, formerly of New York.

INSTITUTION LIBRARIES

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Please address items of news and inquiries regarding Institution Libraries to the editor of this department, McLean Hospital, Waverly, Mass.

Institution Libraries of Iowa

BY G. S. ROBINSON,

Late Chairman of the Board of Control of State Institutions of Iowa.

Even as early as 1906 the purchase and use of books and periodicals by the fourteen state institutions under the care of the Board of Control of State Institutions of Iowa had become a serious problem. At that time the institutions contained 8,000 inmates in charge of 1,400 officers and employees, and included four hospitals for the insane, one hospital for inebriates, an institution for feeble-minded children, a soldiers' home, a soldiers' orphans' home, school for the deaf, college for the blind, two penitentiaries, an industrial school for boys and one for girls.

The penitentiaries, having liberal library funds, had acquired large collections of books, one of the hospitals for the insane had a considerable number of high-class publications in fine bindings, many of them imported, but adapted to the use of advanced students and scholars rather than the ordinary reader or the insane. These books were in cases on the wards, but were seldom read. Other institutions also had books, and appropriations had been secured to make further additions to the libraries, but the board was not satisfied with the work done or results obtained, and felt the need of trained helpers in selecting reading matter and causing it to be circulated and read. State library officials gave valuable aid in selecting books, but lacked the intimate knowledge of the various classes of readers which was necessary to the most intelligent selections. Some of the institutions had officers capable of making desirable book lists, but none of them had anyone trained in library work, capable of classifying and cataloguing books, keeping proper records, and stimulating interest in the libraries.

The needs of the institutions varied according to their different classes of inmates and the differing needs of inmates of the same institution. Few of the institutions had anyone in service who possessed adequate knowledge of literature and also of the peculiar needs of the population to be served. The chaplains of the prisons had charge of the prison libraries and rendered valuable service as librarians, but they were not trained in the work and could give to it but little time. In none of the other institutions was there anyone who gave systematic attention to the libraries. Most of the libraries contained worthless books and some which were objectionable because bad. What time had been given to the libraries was of an irregular, spasmodic character, but little cataloguing was done, few records were kept, books desired were not easily found, and many were lost.

Attempts had been made to improve the service, but

there were no funds to employ trained librarians to give all their time to the work, and recourse was had to detailing employees charged with other regular duties to give a part of their time to the libraries. But none of them had library training, few had much knowledge of books, their terms of service in the institutions were usually short, and the work was not carried on in a systematic and effective manner, and was of little value. Finally the board became satisfied that a new system should be adopted to secure the best obtainable results, and conferred with state librarians and others as to different plans. It finally adopted the system of employing a trained, experienced, and competent librarian to take charge in a supervisory way of all the institution libraries. As there was no state fund available for the payment of the salary and expenses of such an officer, the board could not appoint, but it was arranged that each institution should assume its proper share of the cost of the service based on the time the librarian should give to its library. Pursuant to this plan, a trained librarian was selected, who entered on the performance of her duties March 1, 1906. She proved to have unusual qualifications for the work, and entered on it with great enthusiasm. Her duties included the supervision of the libraries of the various institutions under the control of the board, the selection of books and periodicals in cooperation with the institution officers and the board, the classifying and cataloguing, the preparing of forms for records and reports, the instruction and training of local librarians, the stimulating of interest in employees and inmates in good literature, or rather in literature best suited to their needs, and the doing of whatever should be proper to increase the efficiency and usefulness of the libraries.

A system of monthly reports by the local librarians was instituted, the libraries were examined, objectionable books were withdrawn, books not adapted to the use of the institution where found were transferred to other institutions, damaged books were repaired, worn-out books were replaced, books were catalogued, finding lists were made, and so far as possible suitable rooms for the libraries and for reading were secured and furnished. New book lists were made out, and much attention was given to the needs of employees as well as inmates. Especial effort was made to stimulate interest in the libraries, and the circulation of books and magazines was greatly increased.

No means exist for comparing accurately the circulation before with that after the supervising librarian took charge, but it is known that the circulation was greatly increased during the first biennial period of her service. In the statistics made under her supervision no account is taken of newspapers taken and read by employees and inmates, nor of magazines and books circulated and read, but not issued by the librarian, nor of the different readers of books and magazines issued to a ward or cottage and read by more than one person before their return. As many employees and inmates have their own papers, books, and magazines, and many books and magazines are placed in wards and other places where they are read by many before they go back to the library, the number of readers and the quantities of literature read are much greater than the records show.

The first available statistics cover the eighteen months which ended June 30, 1908. They show that at the end of that period there were 50,640 volumes in the fourteen institution libraries; that the average monthly number of officers, employees, and inmates during the period was 9,580; that the average monthly number of readers was 2,776, the total circulation 200,151, and that 38 percent of

the circulation was of periodicals. Of the books circulated approximately 2 percent related to art, 2 percent to biography, 3 percent to essays and poetry, 3½ percent to history, ¼ of 1 percent to science, 3½ percent to travel, 8½ percent was of a miscellaneous character, and 75 percent was fiction.

In considering the circulation of books and the kinds read, the character of the inmate population should be considered. Of the total number of inmates at the end of the period—7,989—1,083 were in the institution for feeble-minded children, which furnishes the smallest percentage of readers, 4,069 were in the hospitals for the insane, and a considerable number in the soldiers' orphans' home, too young to read.

In 1909 the supervising librarian retired to enter service elsewhere, and the vacancy was not filled for a considerable time. The second librarian rendered most effective and satisfactory service, but after a time she also resigned to accept a more tempting position, and the third librarian was appointed. The breaks in the continuity of work made by these changes were very prejudicial to the service. Nevertheless the impetus given to the work was so great that much was accomplished despite the changes. The last available report covers the biennial period which ended on June 30, 1914, and shows the following for the period:

The number of volumes in the libraries at the end of the period was 40,255, the average monthly population of officers, employees, and inmates was 10,816, the average monthly number of readers was 3,668, and the total circulation was 520,651, of which 48 percent was periodicals. Of the remainder there was a small increase in the percentage of biography, science, travel, and fiction, and a decrease in the percentage of essays, poetry, and miscellany. As compared with the period of eighteen months which ended June 30, 1908, there had been an increase of 13 percent in the average monthly population and an increase of 95 percent, making due allowance for the difference in length of periods, in circulation.

The increase of the percentage of readers in the hospitals for the insane is notable. In the period of eighteen months which ended June 30, 1908, the average monthly percentage of readers was less than 12, while during the biennial period which ended June 30, 1914, it was almost 25.

The use of books and magazines in hospitals for the insane not only furnishes entertainment, but is remedial. It "diverts the attention of the morbid mind from itself to something else." Many patients unable to read are interested in the pictures of the illustrated magazines and thus receive benefit. The superintendents of the hospitals are especially emphatic in their approval of the new library system. One of them who has had many years' experience as superintendent of hospitals for the insane in different states recently stated that never in his experience in hospital work had he seen anything like the progress in library development which was made in the institutions under the care of the supervising librarians. Miss Carey, the first of these librarians in this or any other state, in one of her excellent papers asks, "Where is a book always a tool?" and answers, "In state institutions." At another time she states that books are "tools to be used with intelligent expectation of getting results." Such use of books has been kept steadily in view in selections made under the new plan. The purpose has not been to accumulate a large number of books, but rather those most useful. During the six years which ended June 30, 1914, the yearly average of accessions was 2,450 volumes, but the number worn out, destroyed, and otherwise withdrawn exceeded that number, and the total num-

ber in all the libraries had fallen during the six years from 50,640 to 40,255.

Iowa was the pioneer in the work described, but the experiment is fully justified by the results achieved. It is heartily approved by the officers in charge of the institutions affected by it. No doubt it can be improved. The experience of the state, however, warrants the following conclusions:

1. Well-selected libraries can be made most potent factors in accomplishing the special work for which the institutions are established.

2. Such libraries cannot be carried on successfully by untrained librarians without expert supervision and assistance.

3. It is desirable that each library be in charge of a well-trained and competent librarian of experience, who shall give so much time as is possible to the library and be paid from the institution funds.

4. The institution librarians should be supervised, and, when not experts, should be trained, and in all cases assisted by a state librarian of superior training, experience, and qualification for the work.

5. The supervising librarian should be paid by the state. The system of pro-rata payments by the institutions served involves the keeping of complicated accounts, and is very unsatisfactory.

6. Each institution should have one or more rooms for the accommodation of the library and conveniently located, well-lighted reading rooms, open at all proper times, for the use of employees and so many of the inmates as may be in condition to use them.

Norfolk State Hospital, Pondville, Mass.

Dr. Irwin H. Neff, superintendent of this hospital, has been kind enough to send us a copy of the first annual report of the library, which is an exceedingly stimulating document.

This hospital, for the care and treatment of male inebriates and drug habitues, has been in existence as an independent institution only since June, 1914; for three years previously it was conducted as a colony of the Foxborough State Hospital, with which it now has completely severed its connection, leaving at Foxborough only the insane.

The library at Foxborough, before the separation, was one of the most interesting of all the Massachusetts state hospitals, for it was housed in a building by itself, in which were open fireplaces, and where the men were allowed to smoke, thus making of it a recreation and reading room combined. The books, of which there were many, were carefully selected by Dr. Neff himself, and they were thoroughly used and enjoyed.

At the new hospital are two library centers, the "main library" at "The Oval" and the "branch library" at Pondville, both under the care of a librarian, Mr. Frank C. Lockwood. In this, his first report, Mr. Lockwood states that on November 30, 1914, there were in the library 278 books; on November 30, 1915, these had increased to 883 volumes, of which 105 are nonfiction. Starting with this nucleus of 105 volumes, Mr. Lockwood is very wisely classifying them, knowing that the library will grow and believing in organization at the start; 3,863 books were loaned to patients during the last nine months, and the reference books frequently consulted. Four weekly and sixteen monthly periodicals are subscribed to, besides eight daily papers.

Moreover, this library is establishing itself as "a bureau of the generally useful sort," striving to supply in

small ways the wants of the men. Copies of poems and music have been made, and items of information relating to authors and prominent persons have been listed. As Dr. Neff says, they are "slowly but surely founding a library at this hospital on definite lines."

From the McLean Hospital Library Annual Report for 1915

The general library now numbers 8,294 volumes, a gain of 301 volumes in the past year. Of these, 114 are fiction and 66 books on art and handicrafts, bought from a bequest; the other 121 deal, for the most part, with travel, biography, and the war; 9,020 books were loaned to patients and employees, 85 being the largest number given out in any one day. There have been fewer books taken out by individual patients, but more by the head nurses for their wards, than ever before. We have tried a plan this year of filling some bookcases in three of the houses with books not in constant demand in the library, and leaving them for two or three months. Of course new books are sent to these houses in the meantime, but in this way there is always a good supply on hand for an emergency, and the plan has seemed very successful.

In the medical library we have added 187 volumes, of which 137 are bound periodicals. This library now numbers 5,832 volumes.

There were practically no new books issued in December, and therefore the book reviews are omitted. It may be helpful to some hospitals to suggest that January and February are the best months to frequent the book shops and pick up "bargains" and "remainders." Provided one knows what he wants, he can also find the best fiction of the preceding year at greatly reduced prices, but it must be remembered that all fiction that is for sale is not for a hospital library, where one should be especially particular in his selection of wholesome reading.

Next month we are promised an outline of the things Nebraska is accomplishing for its institutions in the way of libraries.

Pennsylvania Hospital for the Insane

Dr. Copp, in his report for 1914-15 of the Pennsylvania Hospital for the Insane, writes: "Provision for the maintenance of a good library and librarian would have the same trend (as handicrafts) in lowering the cost of treatment, and would stimulate a taste for good literature among patients and nurses, sure to be an uplifting and refining influence." Miss Mary Lee Daniels has been appointed musician and librarian in the women's department of this hospital, and is engaged in classifying and cataloguing the library which has just been started here. A pleasant room in the administration house has been fitted up for a central library, and the staff is much interested in the success of this new venture.

Institution Libraries League

Ten years ago, with the exception of a scant half-dozen hospitals with more money or interest than the others, the average institution library was a place to be shunned. It consisted of a few old bound magazines, a little fiction of the Sunday-school order, a lot of old biographies from attics more generous than discriminating, shoved into bookcases on some of the wards. No one was interested in this collection, no one added new books to it, no one read it. That in these ten years this state of things has materially changed is due to the efforts of the very few hospitals which, having good libraries, realized their value and sought by precept and example to interest their less

fortunate kin, and to one state in the Union, which saw the needs of its institutions as a whole and promptly devised means to bring order out of chaos, interest out of utter dullness, efficiency out of absolute inertia.

As Iowa bears the proud distinction of being the pioneer state in the development of its institution libraries, it is altogether fitting that the series of brief biographies of hospital libraries which is now in preparation for this page should be headed by this article from Judge Robinson, who was chairman of the Board of Control in Iowa at the time of which he writes, when that state blazed the trail leading to organized institution libraries instead of heterogeneous collections of dead books.

Health Books in Public Libraries

At the suggestion of the Bureau of Public Health Education of the Department of Health, the New York Public Library has prepared and printed an eight-page booklet giving a list of books on "Health," which are available for use through the branches of the New York Public Library. This list is based on a similar one issued recently by the Public Library of Rochester, New York, and distributed at the recent annual meeting of the American Public Health Association. Through the courtesy of the New York Public Library, a supply of these leaflets has been furnished to the Department of Health, which, in turn, is sending them on request, especially to the biology teachers in the various high schools in this city. Copy of this leaflet may be obtained by addressing the Bureau of Public Health Education, Department of Health, 139 Center street.

It is to be hoped that libraries elsewhere will find it possible to list the more important health books separately, so that teachers and students may have ready access to them in groups.

More County Tuberculosis Hospitals for New York State

The following table, published in a recent issue of *Health News* of the New York State Department of Health, gives the result of the November referendum elections in five counties on the question of establishing county tuberculosis hospitals:

County	1915 census	population	Amount voted on	Yes		No	Majority
				5,756	2,721		
Rockland	47,623	\$ 50,000	5,756	2,721	3,035		
Herkimer	51,101	25,000	4,232	2,434	1,798		
Jefferson	81,861	25,000 ²	10,641	5,430	5,211		
Steuben	83,696	30,000	10,064	7,490	2,574		
Niagara	107,553	100,000	12,174	4,208	7,971		

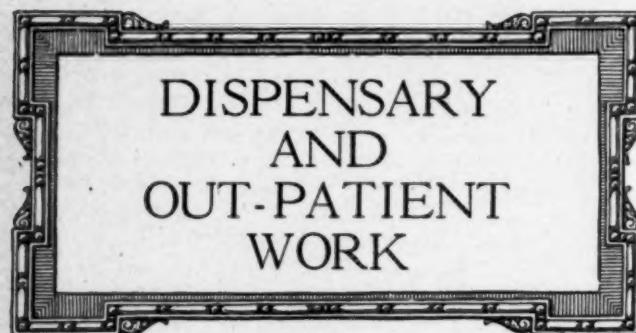
¹Several election districts missing in this report.

²In addition to \$15,000 already appropriated.

The above amounts thus appropriated make it incumbent on the supervisors to proceed to select a site, construct a hospital, and appoint a board of managers under the county hospital law.

Budget for New York State Hospitals

Governor Whitman, at a recent conference on the budget for the New York state hospitals, approved requests for \$1,042,493 to be used along lines of new construction and permanent betterment work at the various hospitals. A plan was suggested to defray part of the cost of construction and equipment of a new hospital by utilizing the \$300,000 unexpended balance of the appropriation for the Mohansic Hospital. This hospital, preferably to be erected on the grounds of the Middletown State Hospital, by an additional state appropriation of \$700,000, could house sufficient patients to nearly do away with present overcrowding.



Conducted by MICHAEL M. DAVIS, Jr.
Director of the Boston Dispensary.

Please address items of news and inquiries regarding Dispensary and Out-Patient Work to the editor of this department, 25 Bennett street, Boston, Mass.

The Dispensary's Place in Sickness Insurance

The fact that a bill to provide for a state system of insurance against sickness is to be introduced in 1916 into the legislatures of New York, Massachusetts, Missouri, and probably of other states lends interest to the relationship of sickness insurance to hospitals and dispensaries. A year ago Dr. S. S. Goldwater said:

"Now that this country is moving toward sickness insurance, I hope that we shall be foresighted enough to utilize, in whatever plan we may adopt, the available resources of our existing medical institutions, both hospitals and dispensaries; without this, we cannot provide medical service of the best kind."

At the meeting of the American Association for Labor Legislation at Washington during the Christmas holidays this subject was considerably discussed. Dr. B. S. Warren, one of the surgeons in the United States Public Health Service, has stated the need for sickness insurance in a recent article published in the *Journal of the American Medical Association* (December 11, 1915):

"There are approximately 30,000,000 wage earners in the United States. Each one of these loses an average of about nine days per year on account of sickness. This estimate is based on an investigation made for the United States Commission on Industrial Relations of about 1,000,000 industrial workers in the United States, and nearly coincides with the German and English figures for over 26,000,000 insured wage earners, which show an average of eight to nine days of sickness per year. Estimating the daily wage at \$2 and the cost of medical services at \$1 per day, the annual loss would amount to over \$800,000,000. This leaves out of consideration the human suffering and losses due to death and decrease in efficiency which follows illness. It also leaves out of consideration the effect on the family when the breadwinner is disabled.

"When the losses due to sickness come to the families living just above the poverty level, this circumstance causes them to fall below that level. These are the conditions which have compelled the partnership between poverty and disease. There is no need to tell physicians that sickness increases as the income decreases; that the mortality rate in the poorest sections of a city is often double that of the best sections; that the infant mortality in the families in which the father earns less than \$10 per week is three times that in the families in which the father earns \$1,200 or more per year, and that the tuberculosis rate is roughly in inverse ratio to the income.

"There is no question in the mind of the experienced physician that at times poverty is caused by disease, and at times disease is caused by poverty, and that this vicious circle must be broken before disease prevention can make much headway among this group of people.

"The conclusion is apparent, therefore, that the largest share of the responsibility for the wage earner's health rests on the workers who cannot carry the load. Society expects these to carry the greatest part of the burden of sickness, when under the best conditions they can barely

meet expenses, and, furthermore, they have the least experience in disease prevention."

Dr. Warren, who has given a great deal of attention to this matter under the direction of the United States Public Health Service, outlines the system of sickness insurance which he believes would go far toward meeting this situation. This is based on a system of contributions paid partly by employers, partly by employees, and a small remaining portion is paid by the state. The contributions are devoted to the provision of medical service for the wage earner and his family during sickness and to the payment of a small cash benefit during the period of incapacity due to illness.

How shall the medical service be provided? While, of course, the individual practitioner will be the mainstay of the system at large, it is of the greatest importance that provisions for utilizing the hospitals and dispensaries shall be made. The insurance payments will enable the hospitals and dispensaries to give the best medical service—the service of specialists, laboratory, x-ray, etc.—to persons who are otherwise quite unable to pay for such benefits of medical science. The workmen's compensation laws have already affected hospital work considerably and in many communities the dispensaries. Sickness insurance will be much more far-reaching, and will be the means of having a large amount of needed work, which cannot be done today because the hospitals and dispensaries cannot afford to do it, performed on a basis which enables the workman to feel that he is not receiving charity, and which enables the medical institution to know that it will receive at least the cost of the service and not be increasing its debt by serving the patients.

A Consultation Clinic

A step of greatest interest and importance to all concerned with out-patient work has been taken by the Massachusetts General Hospital, of Boston, which opens a consultation clinic on January 25, 1916. This clinic will be for the purpose of providing consultation—medical, surgical, or in any specialty—for persons of moderate means. The official announcement issued by the hospital, reads as follows:

"Every Tuesday and Friday at 2 p. m. patients referred by their physicians will be received at the out-patient department on Fruit street for consultation and diagnosis only. These are hours apart from those of the regular out-patient clinic.

"Physicians are requested, if possible, to accompany their patients. When a physician is unable to accompany his patient, he will be expected to send a letter referring him to the hospital. This letter will be answered, and as far as possible the diagnosis given and treatment suggested.

"The clinic is designed for the benefit of families with small incomes. Diagnosis has become so complex and expensive in obscure and difficult cases that its cost has become a heavy burden to those who nevertheless are able and willing to pay something. It is expected that physicians will not refer to it people of considerable means.

"A fee of \$5 will be charged. When an x-ray examination is needed, a fee of \$2 to \$3 will be charged in addition. For certain other laboratory tests charges not to exceed \$1 will be made. The \$5 admission fee includes more than one visit when these are necessary for a diagnosis."

Dr. Karl H. Van Norman, who quit his position as assistant superintendent at the Johns Hopkins Hospital in October to become a captain in the Royal Canadian Army Medical Corps, is stationed at Ramsgate, England, where he has supervision over 125 patients in an important British military hospital. Ramsgate is within ten miles of Dover and within hearing of cannonading in Flanders.



Conducted by ALBERT WARREN FERRIS, A. M., M. D.,
Superintending Director for the Commissioners of the State Reservation,
Saratoga Springs, New York.

Please address items of news and inquiries regarding The Modern Sanatorium to the editor of this department, Saratoga Springs, New York.

The Sanatorium Physician

BY ALBERT WARREN FERRIS, A. M., M. D.

Many years ago the family physician was the only court of resort. He was the sure guide, profound philosopher, and cherished friend of the family, as well as the only source of medical wisdom. An ideal relation existed between him and his patients. He was chosen as counselor and friend by a young couple at the time of their marriage, and he officiated as obstetrician, moderate gynecologist, general internist, and near-neurologist. His laboratory work was confined to elementary urine analysis, and the only specialists he knew were operative surgeons and the practitioners who limited their activities to the combination field of "diseases of the eye, ear, nose, and throat."

His diagnoses of putrid sore throat, inflammation of the bowels, or heart failure were readily accepted on death certificates. His ideas of the proper place in a room for the hot air register or of the right color of the proposed wallpaper decided those weighty matters to the complete satisfaction of his clients. In short, he was trusted, respected, admired, and loved by his community, and the confidence he inspired on entering a sick chamber was of great value to the patient.

It seemed once that an ideal theory and method consisted of the selection by a family of a general practitioner who should be chosen for life, or until he retired from practice; who should make the fullest possible fruitful inquiry into the inheritance and antecedent history; who should study the tendencies as well as the transmitted susceptibilities, and also the cross strains admitted through marriages; who should make, in addition, psychological studies of mental adaptabilities and capacities; to the end that he should not only advise as to the avoidance of disease and treat actual diseases on their appearance, but also act as a guide in sports and physical development, in courses of study, and in choice of a vocation in life, as well as regarding the marriageable age of the individual daughters in the household and their preparation for the formerly popular profession of motherhood. On his death or retirement from practice his histories and case notes were transmitted to the man who succeeded him as physician to this family, or to the next generation thereof.

This scheme would be admirable if it were possible in more than a very few communities, as in a sessile population. A physician with a broad, trained mind and an exceptional medical preparation would be invaluable and ideal in the relations just described; but doubtless such a real "family physician" was an extreme rarity.

With the expansion of medical knowledge and the better comprehension of disease, with the tremendous growth

of preventive medicine, the general practitioner became less valuable and entirely inadequate. It is a trite saying that one man cannot do everything. As specialism grew, an inevitable and welcome result of the increase of technical medical knowledge, families began to ask for separatists and individualists in practice, and by degrees the general family practitioner disappeared. The head of the family, with several specialists in mind, came to think and to ask, when sickness appeared, "whom shall I call in?"

For many years in urban and suburban communities the medical specialist has been summoned precisely as would be an efficiency engineering expert, to examine the conditions, point out the deficiencies, and suggest the remedy. The internist favored by the family may be put in charge of the case to follow the specialist's directions and to assist in the convalescence, after the bright effulgence of the oracle had faded, on his departure. Thus the group system has grown. The internist is one of a group of physicians including aurist, oculist, neurologist, etc., one or other of whom must be summoned from time to time. The head of the family must reckon on being surrounded by six or seven specialists instead of relying on the "family doctor," as in the good old time. The specialist may be called but once; he may operate, or the case may pass into his hands entirely. But in few instances can his grasp of family conditions be comprehensive, rarely can his interest be deep, very seldom can he stand in the valuable relation of the former "family doctor."

Many of our specialists are of the utmost value. Their keen insight and diagnostic skill cause the initiation of measures that save life; but many of them lack the human touch and the human sympathy, and very naturally their connection with the case is often merely technical and ephemeral. A few have secured most of their medical knowledge at the autopsy table. After these have cleverly solved the diagnostic problem, and have formed such a clear conception of conditions as to be able to draw the lesion on the blackboard with colored chalks, their interest ceases.

Talented physicians with such an attitude toward sick people will not alone make a success of sanatorium work. The semi-invalids or invalids who seek help, as well as those who apply for preventive care, will not be satisfied with an impersonal examination and disposition of their cases, as if of so much material. If dissatisfied and not at ease, they will not progress very rapidly toward good health. They need the relations of the old-style physician, who never loses sight of the person in the case.

Perhaps the point is best illustrated by adducing examples. A patient entered a sanatorium some 2,500 miles from home, leaving husband and children behind, courageous, but somewhat sad and lonely. Fortunately, she fell into the hands of the best physician, technically, on the staff of the sanatorium, whose treatment was scientific and skillful, and under whose care she improved. She wrote, however, to an acquaintance, "I am sure Dr. A. B. is an excellent physician, but I miss the personal touch." Later she wrote, "I stayed my allotted time, under the good, but very impersonal, care of Dr. A. B., and I don't think he regretted my going, as I could not take him as seriously as he takes himself. I rather teased him by telling him not to express his great regret at my going—this after a most conventional goodby—that I could not bear it, and I could almost see the joy in his eye as I finally turned my back and left him in peace."

Another patient went to a sanatorium with great reluctance, accompanied by a relative, and was depressed and dispirited, distract and unhappy during the five or six weeks of her stay. She made fair progress and strove

to interest herself in the condition of her relative, who was by far the more ill of the two. On reaching home, however, this uninterested and apparently unappreciative patient wrote to the physician who cared for her while at the sanatorium as follows: "I truly want to thank you for all your thoughtfulness and care of my cousin and myself while we were at the sanatorium. You did everything in your power to make us enjoy our stay, and I can truthfully say that I hope some day to visit it again. . . . I thank you a thousand times, Dr. X. Y., for all." Such testimony shows that in successful sanatorium work the physician must remember he is more than a mere technician, an expert mechanician. On the staff must needs be pure technicians and mechanicians; but the one in charge of the case, the one holding the most intimate relations with the patient, must be a doctor with great patience and devotion, broad tolerance, kindly sympathy, and a warm human feeling; an optimist with an abiding zest in existence himself, and with a constant desire to help, sustain, and cheer.

A HOSPITAL IN THE DUTCH WEST INDIES

Two Sleepy Islands in the Caribbean Seem to Have Been Forgotten by Civilization

Half a day's sail from the verdant gardens of northern Venezuela lie the island of Curacao and its sister isle Aruba, where the restless Caribbean shatters its glistening breakers against the coral strands. There is always a high sea, for there is always a wind. The constant trade winds sweep from sea to shore, across the barren wastes, and off again over the dancing waves. Their moisture-laden breath, warm and oppressive, seldom lingers to freshen the parched, scrubby growths. The poor, sparse little bushes, tough cacti, and rank grasses fight courageously for life, and linger patiently through the torrid mid-day sun for the sweet refreshment of the starlit dews.

Water, always water! is the cry of the hour, and this necessary commodity in this little out-of-the-way place is an item always open to speculation.

A *porta de agua* consists of a fifty-gallon barrel suspended between two large wheels and drawn by a very sleepy, dusty little burro. The driver shouts his wares as we do ours in American cities. Now and again the outfit stops; the burro closes his eyes, while his master fills a five-gallon can, for which he receives two cents. Occasionally a real drought occurs, and only recently this calamity was unusually severe, when only twelve inches of rain fell in the course of a year and a half, being about one-twelfth of that experienced at Havana. The death rate doubled on the island of Curacao, and half of the burros died of thirst. Aruba, with a population of about 9,000, is just recovering from a very severe drought.

In the midst of our efforts to increase hospital efficiency

at home, to surround ourselves with every comfort which ingenuity can suggest, may we not look with helpfulness to the hospital facilities which obtain at Aruba, so near us and so entirely dependent on us. The solitary physician to these 9,000 writes as follows:

"On account of five years with almost no rain, no crops, and with brackish drinking water, the physical condition of the people is very bad indeed, and it is a wonder that they do not die of starvation. A fat person is a rare sight. Most all of the people outside of the town have scurvy to a greater or less degree, which also makes them more liable to other diseases, especially typhoid fever, diarrhea, and dysentery. Besides the diseases of the place itself, many men who have gone to Venezuela and Colombia for work have returned with malaria.

"The government has a house where the people who are in the worst stages of starvation can go, and where thirteen people are allowed 12 cents a day for food. This



Fig. 2. Filling the water wagon, the most important business in the Dutch West Indies.

house is not even called a hospital by the government—and, in fact, is none—because they have no nurses and nobody to look after the sick people. If anybody is very sick, one of the family goes with him and takes care of him; if the sick one has no relatives, then he does without care. The following is an example: a month or so ago there was in the hospital an old man with tuberculosis and ulcers. After a while he became bed-ridden and offensive, so that he was removed to a smaller house nearby, where his food was sent to him during the day, but at night he was left alone to shift for himself. An effort was made to get someone to nurse him, and three *guilders* (\$1.20) a day was offered, but nobody could be found. One morning he was found lying more than half naked in the street, where he had crawled in his last agony."

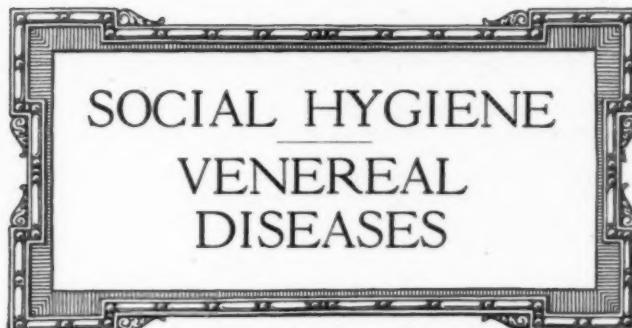
This little glimpse of a strange, out-of-the-way place is so completely free from fiction, that it becomes positively painful when we consider it in detail. Incidentally it brings us back to the individual for whom hospitals, after all is said and done, really exist. System, efficiency, economy have become so essential and so absorbing, that we sometimes forget the real reason for it all and make of our patients a cog in the gigantic machine instead of its moving force.

PALUEL J. FLAGG, M. D.,

120 Central Park, South, New York.



Fig. 1. Harbor at Curacao, looking west over the Caribbean sea. Nine thousand people without a hospital.



Conducted by WILLIAM F. SNOW, M. D.,
General Secretary, *The American Social Hygiene Association*.

Please address items of news and inquiries regarding Social Hygiene to the editor of this department, 105 West Fortieth street, New York City.

The Hospital and the Venereal Diseases¹

Two of the conclusions which insistently claim attention as a result of recent investigations of genitourinary and gynecological services in hospitals and dispensaries are the need for improving and standardizing the management of venereal disease patients and for adequately extending such services.

An investigation now being conducted in New York city by the Committee on Public Health of the Academy of Medicine, cooperating with the Bureau of Public Health and Hygiene of the Association for the Improvement of the Condition of the Poor, shows that of thirty general hospitals only ten receive recognized cases of syphilis in actively infectious stages; but, once admitted on some other diagnosis, twenty-seven give care and treatment, although only seventeen provide the services of a syphilologist. Nine receive adult cases of gonorrhreal infection needing hospital treatment, and two of this number specify, "only surgical cases are accepted." Three city hospitals receive and treat active gonorrhea in little girls. Thirteen of the thirty will not receive medical cases with known complications of syphilis or gonorrhea.

Yet with these limitations, during the past year 2,607 syphilis cases were treated according to the reports of only fifteen of these hospitals. When it is realized that careful investigations, based on a constantly increasing number of individuals representing every class of citizen and all types of occupation, show evidences of syphilis in 8 percent up to 25 percent, and in certain groups 40 percent (exclusive of prostitutes, which have shown a percentage of nearly 100 percent, one may well ask the question, what becomes of those who do not receive any hospital care? Hospital managements should take an active interest in the public health phases of this tremendous problem. Many believe that the management of venereal disease cases is essentially a dispensary problem. While it is true that the hospital adds chiefly a bed and the more complete supervision through discipline and organized professional nursing staffs, it is also true that these additions in certain manifestations of syphilis or gonococcus infection make all the difference between success and failure. Many experienced physicians believe that the intravenous administration of such remedies as salvarsan (the treatment for syphilis frequently referred to as "606"), when performed outside the hospital, is attended with serious risk to the patient. Furthermore, such treatment, under the adequate supervision possible in the hospital, is most likely to inhibit the transmis-

bility of the disease for a considerable period, or even to end its development in early cases. The treatment of many cases of gonococcus infection is surgical, and hospital care, therefore, imperative; but there are others frequently denied admission whose prompt recovery and return to normal living and occupation without danger to family or fellow-workmen would be greatly increased by those services which can be rendered only under hospital conditions.

Furthermore, the active participation of hospitals in the campaign against venereal diseases is rendered the more urgent because in a large percentage of cases the hospital management also governs the dispensary facilities offered for venereal diseases. As previously pointed out in this column, New York investigations made by Dr. Barringer and Mr. Platt show that only seven out of twenty-seven clinics offering treatment for syphilis meet the requirements of the Associated Out-Patient Clinics, and only four out of twenty-six clinics offering treatment for other venereal diseases meet these standards. The records of only two clinics could be profitably analyzed, and these show less than 10 percent (9.7 percent and 9.4 percent, respectively) dismissed as cured. Figures pub-

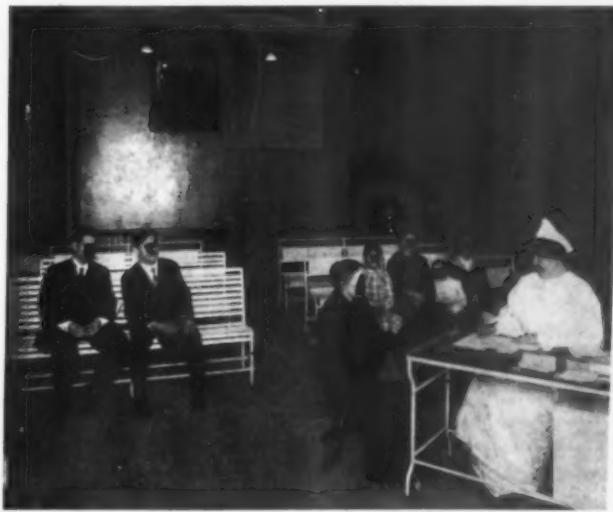


Fig. 1. Waiting room.

lished by Dr. Davis, of the Boston Dispensary, similarly show only 11.4 percent of 450 patients dismissed as cured, and the figures of Dr. Sanford, of the Lakeside Dispensary in Cleveland, give as cured only 12 percent of the series studied. In the later series of investigations, five hospitals were found to require before the discharge of a syphilis patient three tests, technically designated as (1) healed lesions, (2) entire disappearance of symptoms, (3) one negative Wassermann; but thirteen hospitals similarly studied require none of these. One hospital requires for discharge a gonorrhea patient two tests, technically known as (1) negative complement fixation, (2) negative prostatic massage (for men) or negative cervical smear (for women); but fifteen hospitals require neither of these. Ten hospitals refer discharged cases to social service departments for some form of follow-up observation, but such follow-up work with venereal diseases is usually very incomplete.

What this means to the public can perhaps be paralleled by the spectacular outbreak of smallpox which occurred in Montreal in 1887, when the panic-stricken inmates of a hospital, after exposure to an unrecognized case, were permitted by the authorities to scatter through the city, with

¹The obliteration of patients' features in the pictures shown in this article is a good illustration of the care that is taken to secure privacy in this part of the department's work.

the result that several thousand persons developed the disease and many died. Outbreaks of venereal diseases are not spectacular or sudden, nor do the causal organisms find ready opportunity to attack new victims except through the intimate relations of sexual intercourse, but their insidious spread, aided by the prolonged periods of years during which infected individuals may be carriers, makes them far more dangerous than smallpox. In the development of adequate medical and social treatment of



Fig. 2. Wassermann laboratory.

venereal patients we have presented to health departments a concrete problem for which solution is demanded by every interest—economic, social, and moral.

The need and the practicability of providing diagnostic, advisory, and treatment facilities for ambulatory cases (i. e., those patients who may come to the physician's office or dispensary for treatment) have been fully demonstrated by the private, pay-clinic, and free-clinic treatment services established.

The photographs here reproduced show the New York Health Department's advisory and laboratory services in operation. During the past year more than 3,000 persons applied for advice, 316 of whom came during the first six months as a result of a small paid advertisement inserted in the newspapers announcing free confidential advice by the health department. During this same period 59,614 specimens were examined for evidence of syphilis or gonococcus infections, 75 percent of which specimens were received from private physicians. In the past four years more than 5,000 interviews and letters relating to sex matters or venereal diseases have been provided for by the Oregon State Board of Health in cooperation with the Oregon Social Hygiene Society. There has already been published in this column similar illustrations of treatment facilities through free and pay clinics, as demonstrated by pioneer work such as that of the Boston Dispensary, the Brooklyn Hospital, and other institutions.

Dr. Edward L. Keyes, Jr., in a recent paper before the Pan-American Congress in Washington, says:

"The part played by the clinic and the hospital in the treatment of venereal disease is also being developed. In the past the following curious contradictory situation has existed in many of the cities of the United States: the regulations of most of the hospitals prohibited the admission of infectious diseases, including therein the venereal diseases. Thus all men were effectively excluded. But, inasmuch as the internal complications of gonorrhea in women, such as pyosalpinx, formed a large part of the operative material of the gynecologist, no one ever thought

of prohibiting the admission of such cases to any hospital. In many instances, indeed, the women themselves were unaware that they were suffering from a venereal disease. A broader knowledge of the infectiousness of venereal disease is, however, changing the hospital's point of view. It is recognized, for instance, that the syphilitic, however disfigured by eruption, is no more of a danger to attendants and other patients in a hospital than is a patient suffering from tuberculosis or typhoid fever. On the other hand, the absolutely uncontrollable contagiousness of gonorrhea in little girls under hospital and institution conditions has led to a rigorous quarantine against this disease in all children's institutions, whether for the well or the sick.

"Out-patient clinics may be stimulated to do efficient work in two ways: first, by the cooperation of the Board of Health in sending patients from its advisory clinic for treatment only to those clinics that live up to a recognized standard of excellence; second, by a federation similar to the Associated Out-Patient Clinics, conducted under the auspices of the New York Academy of Medicine, whereby the chiefs of clinics assemble and enact regulations for the



Fig. 3. Medical adviser's office.

conduct of the institutions that they represent. The fundamental requirements for clinic efficiency are laboratory diagnosis (spirochaeta, gonococcus, and blood examinations), the control of cures by blood examination, and, above all, the control of patients by a social service. This last item includes not only the posting of a letter to patients who fail to return for the continuation of treatment, but, furthermore, if they neglect to respond to a letter, it includes the sending of a social service worker to visit them at their homes and inquire why they do not pursue treatment.

"One would suppose that the life of such a social worker would be beset with violence and strife, yet, curiously enough, a little tact seems to solve all difficulties. Just as the Board of Health has found that if a Wassermann test is positive in a married man, he can very readily be persuaded to bring his wife and children for examination, so the social worker finds that, not only can he persuade the careless patient to return for further treatment, but he can also obtain access to the family of this patient and inform them directly of the dangers to them.

The hospital managements are in the position to greatly accelerate the progress of obtaining adequate recognition of the importance to public health of diagnosing and treating venereal disease.

The Seafuse Hospital, Elmira, N. Y., owned and formerly conducted by Dr. Samuel M. Seafuse, has been leased to Miss Eva M. Paradise, superintendent of nurses at the Westside Hospital, Scranton, Pa. Dr. Seafuse has been compelled to give up active management of the hospital, owing to an attack of arthritis of the ankle, from which he has been suffering for some time.

LETTERS FROM OUR FIELD EDITORS

News Notes From California

PUBLIC HEALTH VALUE OF THE GREAT FAIR

The Panama-Pacific International Exposition on December 4 closed its doors on what was undoubtedly, in some directions, the greatest educational exhibit along medical and hospital lines ever attempted. Many of those who visited San Francisco at the time of our convention and availed themselves of the opportunity to go through the different buildings must have appreciated the many valuable exhibits of interest to hospital people.

Of these exhibits one particularly worthy of interest was the exhibit of the Public Health Service in the Liberal Arts Building, which showed, by means of graphic illustrations, sewage contamination, carrying of infection by flies, life history of mosquitoes, and of the *uncinaria* and *ankylostomum*, all of which were presented graphically in a very simple manner. The methods of constructing ratproof houses, and other aids of great value in disease prevention, were also exhibited.

In the Liberal Arts Building were portrayed the complete workings of the Red Cross organization, shown by means of moving pictures, such as methods of resuscitation in cases of drowning and asphyxiation, as well as all the appliances and methods used in first aid.

In the Educational Building the United States government sent Dr. Bradley to take charge of the department of children's welfare. Through the efforts of various hospitals in San Francisco nurses were loaned to Dr. Bradley, and demonstrations were made to all those who requested them on the proper feeding and care of infants and children. This exhibit was very largely patronized, and I am convinced has resulted in great good.

Also in the Educational Building the state of Pennsylvania has a large exhibit of its health work, particularly illustrating its care of tuberculosis patients. The largest hospital models shown were included in this exhibit, which also contained models constructed of the same material as the original of the Curative cottage and a Sleeping cottage for the care of tuberculosis cases.

The county of Los Angeles, Cal., also had a model of its new tuberculosis hospital in this building.

The government of Japan had a wonderful pathological exhibit, as well as one of the finest institution models at the Fair, that of the Imperial Institute at Tokio, which has been given to the University of California. They also had some very fine interior photographs of Japanese hospitals, showing patients lying in bed with their faces toward the window, and also an overhanging metal bar with a chain and handle attached, by means of which a patient might with his hands raise himself up in bed.

The Rockefeller Institute of New York had a most interesting exhibit of hookworm, showing many cases of secondary anemia due to this condition, and also the initial lesion commonly known as ground itch.

In the Massachusetts section of the Educational Building were beautiful models of a typical ward of the Peter

Bent Brigham Hospital in Boston, as well as the unique construction of the Children's Orthopedic Hospital in Boston.

The New York city building had models and pictures of the old and new Bellevue Hospital, as well as many photographs of the civic hospital development in New York city.

In another building were isometrical drawings of the service building of the Rhode Island State Hospital and a large drawing of the new University of California Hospital.

The emergency hospital conducted by the Fair officials contained eight beds, an operating room, an x-ray department, a small laboratory, quarters for nurses, and administrative quarters. The emergency hospital was in charge of the United States Public Health Service. This hospital also had two very thoroughly equipped automobile ambulances.

Scattered through the various buildings were many exhibits of varied character of great interest to institutional, sociological, and health workers. The entire Exposition, from the standpoint of health and disease, has made manifest the decided advantages of graphic exhibits in our fight for good hygiene, sanitation, and prophylaxis, and such exhibits could be installed, particularly in tuberculosis dispensaries and public places at a very small cost and with very great advantage.

SAFETY VAPORIZER

As a result of numerous fires which have had their origin from alcohol and other kinds of lamps used in connection with vaporizers, I have recommended to an electrical concern the manufacturing of a vaporizer with an electric unit, constructed in such a way that it renders danger from fire impossible, except from the danger of short circuits common to all electric wiring. This can, however, in a way be minimized by careful construction, and frequent inspection. This recommendation is made only after recognizing the extreme danger as a fire risk of the common type of vaporizers.

ACCEPTED NEW POSITION

Miss Lena F. Richardson, of Nevada City, Cal., has accepted a position with the New Juneau General Hospital at Juneau, Alaska.

R. T. SUMMERSGILL.

Division of Fees in Oklahoma Hospitals

The following declaration has been approved by the hospital management and signed by staff members of Wesley and St. Anthony's hospitals, Oklahoma City:

"I hereby promise on my honor as a gentleman that I will not, so long as I am doing work in connection with the University Hospital, practice division of fees in any form, either by collecting fees for others referring patients to me, or by permitting them to collect fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate anyone referring patients to me; nor will I utilize any man as an assistant as a subterfuge for this purpose.

"I further agree that, in case of violation of the above declaration, my connection with the faculty and my privileges in the hospital shall be automatically severed."

Dr. Jacques Behtillon, director of medical statistics of the French army, in a special report which he has prepared, states that the mortality among the sick and wounded in hospitals is now only 18 to 1,000. During the first year the mortality ratio was 53 to 1,000. In peace times the Paris hospitals show a mortality of 106 in 1,000. The cause of the decrease is attributed to better hospital conditions.

LETTERS TO THE EDITOR

More About Bed-Pan Covers

To the Editor of THE MODERN HOSPITAL:

Although not requested to take part in the symposium on bed-pan covers, I desire to submit some information on that subject. Nearly three years ago I designed a metal box for the use of the Cincinnati General Hospital, to be lightly but strongly constructed, with round corners as far as possible, and so arranged as to allow the bed-pans to be carried without spilling or upsetting, and also to permit of thorough cleansing.

I have long regarded the general custom of covering bed-pans with ticking, cloth, etc., as most objectionable. It does not thoroughly conceal the bed-pan either from the sense of smell or from sight, and is most humiliating to nurses and others obliged to carry them to and fro.

Some years ago Dr. Goldwater designed such a box, but had it attached to a carriage, with the result that it could not be as frequently cleansed as it should be.

H. T. SUMMERSGILL.

A Serviceable Bed-Pan Cover

To the Editor of THE MODERN HOSPITAL:

In the December number of THE MODERN HOSPITAL I read with much interest the symposium on the problem of "bed-pan covers." I am at present superintendent of the Portland Surgical Hospital, Portland, Ore., and because of my experience I thoroughly appreciate the replies sent in to your inquiries.

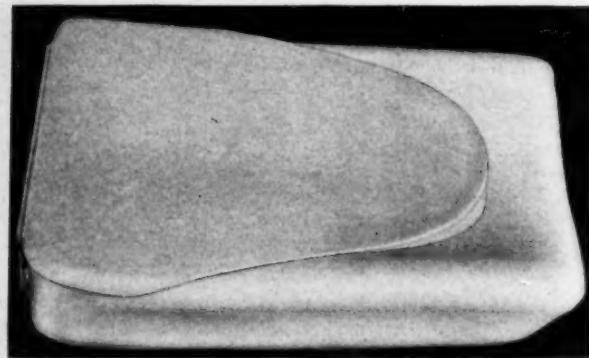


Fig. 1. Bed-pan closed.

We have tried many schemes, but all more or less unsatisfactory. Finally I determined to find a solution of this perplexing problem, and to that end I set myself the

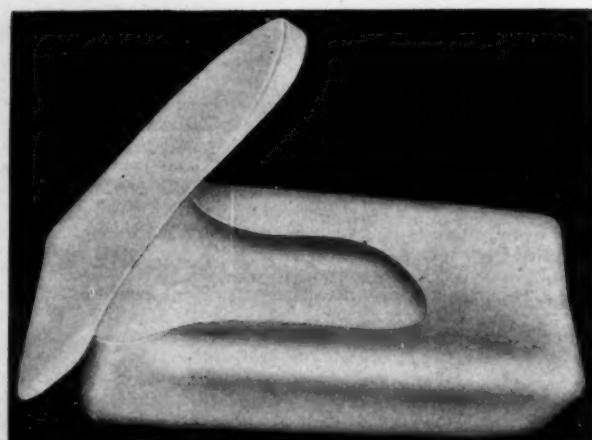


Fig. 2. Cover adjusted to serve as bed shield while pan is in use.

task of devising a bed-pan with an attached cover, sterilizable, noiseless, and airtight. I have not only succeeded in meeting all the foregoing requirements, but have found more than one use for the cover, which can be adjusted while the patient is using the pan. It will serve as a bed shield, protecting the bed, obviating the necessity of disturbing a seriously sick patient to change the bed, made necessary by an unavoidable accident. The cover can also be used as a receptacle for wet and soiled dressings while the nurse is giving the patient attention.

The saving of the bed linen is an item worthy of con-



Fig. 3. Cover laid out flat in the bed, level with bottom of pan, to serve as a receptacle for wet and soiled dressing while nurse is giving patient necessary care.

sideration, as I discovered by its use while testing its virtues in this hospital. The verdict of the patients who used the pan during the test trial was that it gave them a feeling of perfect security and comfort, knowing that the bed was protected against any possible accident, enabling them to thoroughly relax, which they found a great benefit. Then, the pan, when removed from the patient, can be closed and set aside in the room while the nurse gives the necessary after-care, which formerly has been secondary to the removal of the pan. The cover closes tightly, confining the odor, and hence the nurse can take

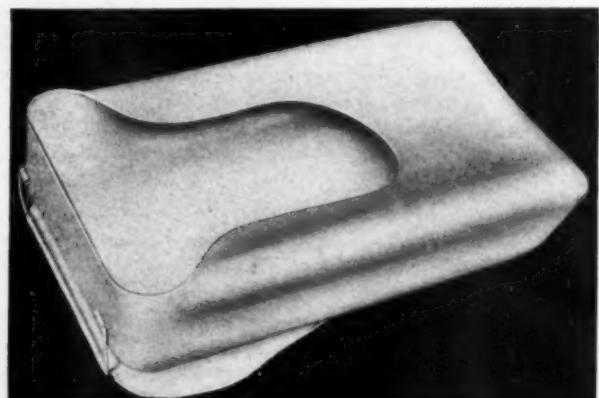


Fig. 4. Cover folded back under pan while pan is being emptied. Cover is entirely out of the way of contents.

the pan any required distance without feeling she is causing a nuisance which she would otherwise be unable to prevent.

In emptying the cover may be folded under the pan entirely out of the way of contents, and in that position can be immersed in the aseptic solution, or otherwise rendered aseptic for further use.

So completely does this pan overcome all the disadvantages of the open bed-pan that I secured a patent on it, and as soon as it can be manufactured I will put it on the market, happy in the knowledge that a long-felt need in hospital equipment has been supplied.

NELLIE M. ERICKSON,
611 Lovejoy street, Portland, Ore.



Who Owns the Hospital Record?

To the Editor of THE MODERN HOSPITAL:

Will you kindly let me know who owns the hospital chart—the hospital or the doctor? Have there been any legal decisions in the matter? J. M. C., Mich.

There are no court decisions, so far as we know, deciding the ownership of the hospital record or patient's chart. It is construed by all hospitals that the hospital itself owns the record, the record having been created by agencies in the employ of or under the control of the hospital. It is construed that the patient may have access to his or her record at any time, and that no one else has a right to the record or the information it contains without the consent of the patient or his legal representatives. Certainly the doctor who treated the patient has no right to the hospital record. The patient may change doctors at any time, and, if the doctor owned the record, he might refuse to allow the patient access to it for any subsequent illness in which there was another doctor employed. In other words, if the doctor controlled the record, he could go a long way toward controlling the patient's health problems for the rest of his life; that is, of course, inconceivable. The courts have practically conceded that hospitals own the records, because, whenever a court wishes a record produced in any case, the hospital itself or the superintendent is served with a subpoena, commanding him or her to bring the record into court. We have been going into court with hospital records for thirty years or more as the superintendent of the hospital, but have never heard of a doctor being ordered by a court to bring in a hospital record.

Salaries of Hospital Officers

To the Editor of THE MODERN HOSPITAL:

Kindly favor me with the following information:

Usual salary paid to a superintendent in a hospital of 100 beds where such superintendent has charge of the hospital and also the training school?

Usual salary paid to a superintendent of only training school in a hospital of 150 to 200 beds?

Usual salary paid to an assistant superintendent of hospital in a hospital of 150 to 200 beds, such position being what is generally termed business manager?

F. A. M., New York.

We think you will find these salaries entirely unstandardized. Each institution must settle its own problem, under conditions that will prevail nowhere else, and we think it perfectly right that this should be so, for otherwise all stimulus would be wanting, and these highly specialized executive officers would lose their individuality and be wholly colorless, and they would have just the same incentive to excel as the union labor worker who may lay just so many bricks a day and not one more. A superintendent of a 100-bed hospital who gets \$200 per month is doing better than the average, but don't forget she is entirely responsible for an expenditure of \$50,000 per year and for property valued, on an average, at \$200,000 or more, and be-

fore she took charge she had to spend long years in nurse training and in the study of hospital administration. It is hardly any more work for such a superintendent to be also head of the training school, because in that case her assistant will do the training school work, and the concentration of authority in the person of the superintendent will serve to remove certain little items of friction that are sometimes annoying.

We think the average salary of the head of the training school in a 150- or 200-bed hospital would be around \$100 per month, and she would live in the nurses' home.

The business manager in a 150- to 200-bed hospital doesn't exist as such. Usually the superintendent performs those duties, and other persons in the hospital shoulder enough of her details to give her sufficient time for this more exacting business. When there is such an office, it is because of peculiar local conditions that make it necessary; but, offhand, an expert administrator going into such a hospital to make a survey, and finding a "business manager" in addition to the superintendent, would look for a "nigger in the woodpile," and would probably have struck the source of the trouble for which he had been called in. Generally some dominant member of the board of trustees or medical staff is responsible for the "business manager" in a hospital of 200 beds or under, and also generally such dominant member wants something done as routine practice that a competent superintendent either would decline to do or would squirm under. What's a superintendent for if not to do the business of the hospital? Sometimes there is a steward or buyer of perishables, but such an officer merely carries out orders of the superintendent and performs other duties, such as cutting the meats, etc.

Accounting for Hospital Funds

To the Editor of THE MODERN HOSPITAL:

I write to inquire what the general practice is regarding the inclusion of the item of interest on the investment in arriving at the cost of maintenance of hospitals. Is that item usually included, and, if so, what is the percentage of the cost of investment that is usually added to the various other items?

GEORGE J. NELBACH,
State Charities Aid Association, New York.

Hospital trustees have never yet learned that endowment or interest-bearing funds are a liability, or a trust, as well as an asset, and they nearly always oppose taking account of the capacity of funds to earn interest, or of wear and tear on hospital property; nor are there any standards by which such measurements could be made at the present time; nor are there any statistics which might be drawn on that would be of value in fixing the rates of interest on invested funds, or the losses to the hospitals by depreciation of their physical properties. It is almost a crime that this is the case, because, until some standards are created by which every item in the expense and income columns incident to the administration of a hospital are at hand, it will be absolutely impossible to create any other standards by which hospital costs and incomes can be measured.

This is an extremely important thing, since the magic figures of what we are accustomed to call "per capita cost" are dependent for their integrity and value on the items you ask about.

It is sincerely hoped that at the next meeting of the American Hospital Association a report will be made by a special committee that will attempt to unify the items to be included in hospital accounting, both on the income and expenditure sides. The trouble then will be, of course,

to get the hospitals to use such a uniform system, and it will undoubtedly mean a long and hard propaganda to bring about the use of the uniform accounting, but until this is done we will go on talking about a "per capita cost" of so much per day without the slightest reference to anything by which a comparison can be drawn between any two hospitals. Some hospitals pay taxes, water rates, lighting bills, and interest on borrowed money, and these must all be charged as current expenditures. These same hospitals may have an adequate laboratory of pathology, a good x-ray equipment, and an expensively conducted diet kitchen—all these departments under the direction of high-salaried, thoroughly trained people; another class of hospitals may pay none of the above service rates, and may have none of these scientific departments that spell service to patients, and yet all these two classes of hospitals might have precisely the same "per capita cost." But see how terribly unjust any comparison would be! In one case the hospital—with a conscience—is struggling to master an almost insuperable situation for the benefit of its patients, while the other hospital is wasting its funds—or worse.

TO MEASURE WORK OF MEDICAL MEN

Some Hospitals Are Attempting to Score the Efficiency of the Medical and Surgical Work—A Form of Card

Some of the hospitals are beginning in earnest to keep account of the work of members of their medical staffs. A few leaders in the profession have suggested within the past year or so that hospital boards had it within their power, and that it should be their privilege and their duty, to inquire into the amount and character of work of staff members, and that such inquiries, properly made, should go a long way toward fixing the net value of each staff member to the hospital.

Dr. Chas. H. Mayo, in a paper read before the Ameri-

can Hospital Association at St. Paul, held that much unnecessary, technically poor, and irresponsible surgery was being done in the hospitals of this country. He suggested that a board of trustees was in position to uncover much of this unworthy work by analyzing the case report to determine (1) what operations were performed, (2) for what diseases or symptoms, (3) how many diagnoses were proved correct on operation by reference to the preoperation history and the operative and postoperative findings, (4) by noting the number of patients who returned uncured.

No doubt similar methods of approach will yield as good results on the medical side and in all other departments of the hospital.

One of the hospitals has attempted to get at some of the items that make up the character of service of its medical men by instituting the use of the card at the bottom of this page.

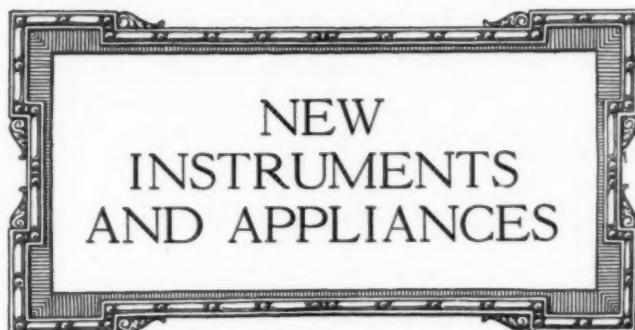
Brooklyn to Have a Third Mental Clinic

The authorities of the Long Island State Hospital are contemplating the establishment of a third mental clinic, providing satisfactory arrangements can be made with either the Greenpoint or Williamsburgh hospitals. Brooklyn now has two such clinics under the direction of the superintendent of the Long Island State Hospital. One is located in the out-patient department of the Pohemus clinic of the Long Island Hospital, corner of Henry and Amity streets, and the other in the Long Island State Hospital, Clarkson and Albany avenues.

Under the will of the late Mrs. Charles Francis, a resident of Massachusetts, who was a frequent visitor at Asheville, N. C., the Mission Hospital of that city receives \$20,000 as an endowment fund.

SUGGESTED FORM OF REPORT ON EFFICIENCY OF EACH MEMBER OF PROFESSIONAL STAFF (DICKINSON)

Name	Position held (Salary)	Residence in hospital	Average number of beds Method of appointment)
A.	<i>Quantity of work</i> ; months of duty; total visits required; total hours given to hospital (or dispensary); vacation; illness, absences, excused, unexcused. Estimated committee service.		
B.	<i>Quality of work</i> (thoroughness, promptness, rapidity).		
1.	Preliminary examinations, consultations.		
2.	After-care, examinations for discharge, instructions to follow-on.		
3.	Histories, personal inspection, personal notes, reviews, studies on end-results.		
4.	Laboratory work, supervision, personal work.		
5.	Training of hospital staff, nurses, dispensary staff.		
6.	End-results (Codman method): The end-result cards, easily grouped for each individual, record successes and errors—the errors scored as a—lack of technical skill b—lack of judgment c—lack of care or equipment d—lack of diagnostic skill		
	Failures grouped also by a—patient's enfeebled condition b—patient's unconquerable disease c—patient's refusal of treatment, and by d—surgical or medical calamities		
	Methods; comments on full histories by chief; review by consultant or efficiency committee; summary of history by clerk; choice by staff of certain operations as tests (e. g., suppuration in clean laparotomies).		
C.	<i>Personality</i> ; integrity; disinterestedness; obedience to rules; team-play; kindness; cheerfulness; enthusiasm; and ability to inspire these.		
D.	<i>Progressiveness</i> ; study of literature; travel to other clinics; membership and attendance at medical societies; originality; researches; publications.		
E.	<i>Executive ability</i> ; initiative; organizing power; control.		
F.	<i>Teaching</i> ; staff, nurses, dispensary; students; public clinics.		
G.	<i>Inspections</i> ; number, by trustees, consultants, hospital inspector. Certain defects to be heavily scored—such as lack of judgment. Percentage to be given under each heading to be determined. Positions differ. Some positions will have a score for executive work, and some for teaching, and others will not. This will involve grouping and reporting such positions separately, but any man's abilities in any of the above matters should be noted even if not marked on a score.		

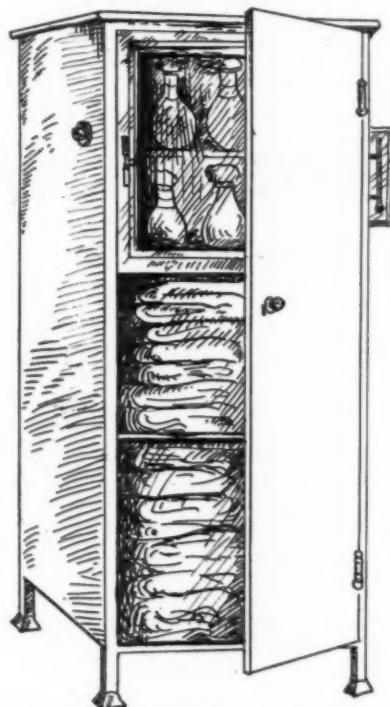


VINCENZ MUELLER, Technical Editor.
GEO. W. WALLERICH, Associate Editor.

Please address items of news and inquiries regarding New Instruments and Appliances to the editor of this department, 327 Southeast avenue, Oak Park, Illinois.

Design for Combined Blanket and Solution Cabinet

This type of a combined blanket warmer and solution warmer and cabinet will be installed in the new University of California Hospital. One such cabinet will be placed in connection with each operating room unit. It takes up the same space as the ordinary blanket warmer, but is subdivided, as shown in the cut, into two parts, the lower part being capable of holding 16 to 20 blankets; the



Combined blanket and solution cabinet.

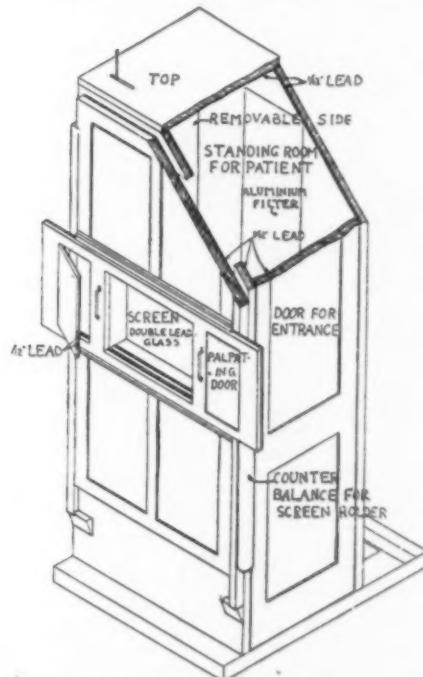
upper compartment, which is inclosed by an inside separate door, is heated independently of the lower two shelves by an electric unit. The heat in this compartment is controlled by an electric thermostat, thus maintaining an even temperature of its contents. The capacity of this upper compartment is approximately 24 to 26 Florence flasks. The lower shelf of the upper compartment is insulated so as to protect it, to a certain extent, from the heat from the lower compartment, which is supplied by a steam coil which will be so installed that it will be impossible to get a temperature higher than 115 degrees F. or 46 degrees C. The dimensions of the entire cabinet are: 24 inches wide, 24 inches deep, and 72 inches

high. It can, of course, be made with or without a sloping top.

There will be no water sterilizer, as such, installed in connection with our operating rooms. The carriage of the mattress sterilizer will be so constructed as to permit of holding a considerable number of Florence flasks containing distilled water and normal salt solutions, and other similar solutions, which will be sterilized once a day for three successive days. The bottles are carefully stoppered with cotton, sealed over the top with gauze, the cotton and gauze being placed on the bottles before they are placed in the sterilizer. After being removed from the sterilizer, after the final sterilization, they are placed in their proper receptacles, where they are kept heated to the proper temperature ready for use.

A Safe Protection Apparatus for Roentgen Examination

Since the increased use of the fluoroscope in Roentgen examination of the chest, heart, intestines, etc., much concern has been felt by those operating apparatus as to the danger to the operator, as well as that of patients, in the continued exposure to the x-rays. Just what is the ultimate effect of such exposure is not yet understood, though much has been done in the way of study of systemic and blood changes. Experiments have demonstrated that there are blood changes in animals which have been exposed to the Roentgen ray, and there are several cases of death reported following lymphatic leukemia, the individuals



Dr. M. Milton Portis' cabinet for x-ray examinations.

having been exposed to the rays in their work as radiographers.

Dr. M. Milton Portis, of Chicago, has given much study to the question of x-ray protection, and has done valuable work toward proving or disproving claims with reference to the safety in using the fluoroscopic cabinet or table. In cooperation with Prof. Milliken, of the University of Chicago tests were made with a stock upright fluoroscope. It was demonstrated conclusively that secondary rays were present in various parts of the room, the test used being the gold-leaf electroscope. Being unwilling to accept the apparatus at hand as a safe one Dr. Portis then had con-

structed a cabinet which in many respects differs materially from other forms of apparatus used for a similar purpose.

The illustration shows quite clearly the details of construction. The cabinet is strongly built of hard wood and of such size that the patient is placed within this cabinet. Lead protection is used to a greater extent than has heretofore been customary, insofar as in addition to surrounding the tube with the usual protection the entire cabinet is lined with one-twelfth inch of lead on all sides. The fluoroscopic screen is mounted in a frame, this frame having two doors, one at each end. The purpose of these doors is that one can, when desirable, palpate the patient but at all other times the rays are completely shut off. Instead of using a single sheet of lead glass over the fluoroscopic screen two sheets are used. That portion of the cabinet through which the rays pass is covered with aluminum filter. By isolating the patient within the cabinet all secondary rays, which undoubtedly have much to do with the danger to the operator, are cut off. Only the useful rays, i. e., those passing through the patient and to the fluoroscopic screen, are liberated, but their action is again arrested when they are absorbed by the two thicknesses of lead glass.

This device has been used for some time and frequent tests indicate that it can be relied upon for protection.

New Urethritis Syringe.

Syringes of the piston type, such as are usually prescribed by surgeons in their offices, or in the genito-urinary out-patient departments of hospitals, are a source of much annoyance and often the cause of negative results.



Fig. 1. Graduated urethritis syringe.

The uneven working of an unevenly ground syringe-piston makes it difficult to regulate the pressure and the charge is often injected with such force as to cause laceration of the mucous membrane. Through this laceration the germs

frequently penetrate deeper tissues, thus increasing the danger of creating a chronic condition.

The syringes illustrated here overcome the objections pointed out, as the bulb permits of gentle regulation, and by simply exhausting the air in the bulb the desired quantity of fluid is drawn up into the barrel and can be discharged under perfect control.

Fig. 1 is a syringe which is especially suited for treatment of gonorrhea, because it permits of perfect regulation of the force of the injection and is easily sterilized. The barrel is graduated to 15cc (1/2 ounce), which is large



Fig. 2. General purpose syringe.

enough to distend the canal in order to medicate the entire membrane. The bulbous enlargement acts as an air chamber and prevents the fluid to be injected coming in contact with the rubber bulb; thus the injections of all the usual medications, including nitrate of silver and argyrol, are possible.

Fig. 2 has the same capacity as Fig. 1, but it has no bulbous enlargement. On account of the shape of the point it can be used for blood transfusion, washing out of veins, or in connection with a catheter in genito-urinary work. The bulb on this syringe is so designed that the fluid cannot flow back into the bulb from the glass barrel.



Fig. 3. Syringe for treating female urethra.

Fig. 3 is a syringe designed by Dr. Van Buren, of Omaha, Nebraska, especially for treating the female urethra. The tip is so shaped that a little pressure against the meatus will obstruct the return flow, so that in this manner the urethra is dilated and the mucosa unfolded so that the injected fluids will come in contact with all parts up to the sphincter muscle.

These syringes can be procured at the surgical supply houses under the trade name of Asepto urethritis syringes, and, as their price is comparatively low, they seem to be well adapted for hospital and dispensary use.

Labor-Saving Machine for Use in Institution Laundry Departments

There are constantly brought to the attention of the hospital superintendent and the attending staff new inventions for use in the operating and sterilizing rooms and in the röntgen ray department, while but little has been said or written about other hospital equipment in those departments with which the surgeons and visiting laity rarely come in contact. One of the important departments in every hospital is the laundry, for whose use have been invented during the last few years several ingenious machines, the employment of which has, to a great extent, revolutionized the work in this department.

One of these machines which has caused widespread comment and attention is the Rose label, tape, and patch sewing machine (Fig. 1), which has been put on the market by the National Marking Machine Company, of Cincinnati. This machine is used for sewing the Rose patent

process patches (size $\frac{1}{2}$ by $1\frac{1}{2}$ inches) on laundry work of all kinds, and also for reinforcing buttons and button-holes on undergarments. It can be used to advantage by every institution that has laundry work to do, whether much or little, because the expense of the Rose patch seems to be no greater than that of other patches, and the cost of attachment is cut materially. The garments, when taped with this machine, have a very workmanlike appearance (Fig. 2), and possess the means for identification of garments that do not take a mark readily or that should not be marked at all.

This machine is automatic, and sews around the four sides of the patch, cutting the thread and releasing the garment when the operation is done. The four edges of the patch are turned under and stitched down, and this



Fig. 1. Rose label, tape, and patch sewing machine.

prevents raveling or fraying when the garment is washed or worn. It automatically trims the thread and places the next patch in position ready to be sewed. The machine is simple in construction, and can be operated as any ordinary factory sewing machine, and consequently experienced operators are not required. When the foot is raised, the thread is trimmed, and when the foot is lowered, the patch is automatically placed in position for sewing.

The machine has great capacity, its production being limited only to the time taken to sew around the patch and the time required to place and remove the goods. It is claimed that an inexperienced operator can sew on 150 dozen patches per day of ten hours. The patches are permanently affixed by lockstitch, but can be removed if desired.

The laundry mark is put on the patch after the latter

is placed on the garment. This neat patch is not objectionable, and prevents the marking of wearing apparel where the mark might show and avoids the indiscriminate marking of fine linens. It also obviates the use of the old-fashioned and impracticable metal tags, which were found troublesome both to the laundry department and to the owner of the garment because they come off easily and often tear the material.

This machine is recommended for those laundry departments where accuracy, precision, and speed are re-

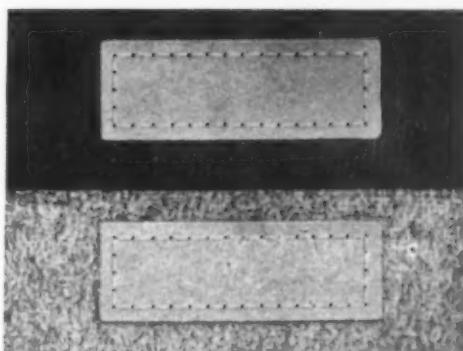


Fig. 2. Rose patent process patch on laundry work.

quired or desired, and where the losses of all kinds are to be reduced to a minimum, as by the use of it one seamstress can turn out as much work in one day as can be done by the old method in three days. If, therefore, only the labor-saving feature is taken into consideration, without estimating the neatness of the work, it seems that this machine deserves the attention of the managers of hospitals and kindred institutions.

Increased Demand for Artificial Limbs and Appliances in Europe and the Possible Effect in This Country

The demand for artificial limbs and orthopedic appliances of every description has been increased enormously in the European countries which are at war, and in consequence thereof there is a great demand for men who



Fig. 1. Young soldier with high amputation of both limbs, practicing walking on short temporary braces, with two canes.

are trained in the manufacture of such apparatus. Not only has the demand grown, but the number of available mechanics has greatly diminished, from the fact that the men skilled in this craft have been called to the colors, like

other men eligible for and fit to do military duty. In Germany alone (the only country from which we have statistics) there are now about 2,200 skilled instrument makers and orthopedic mechanics serving in the army.



Fig. 2. Same man practicing walking on extended braces, with the aid of one cane only.

Several trade organizations representing the orthopedic appliance business have had a number of conferences with the army headquarters in order to impress on them the necessity of releasing, or at least granting extended furloughs to, men who are skilled in this class of work in

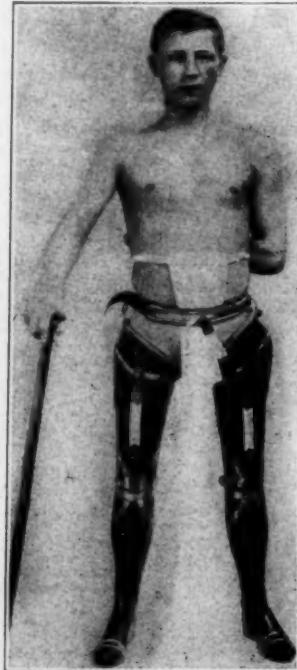


Fig. 3. Same patient as shown in Figs. 1 and 2, walking with a pair of artificial limbs of special pattern.

order that they may help expedite the work of putting crippled soldiers on their feet as quickly as possible, and to make room at the hospitals for the ever-increasing stream of wounded who are arriving from the front, and



Fig. 4. Man wearing one artificial arm enabled to do farm work.

also to make these men again able to take up their former work or some other occupation which may be open to them in their present state of physical disability. To what extent these conferences have been successful we have not yet been able to ascertain.

The various governments have established schools

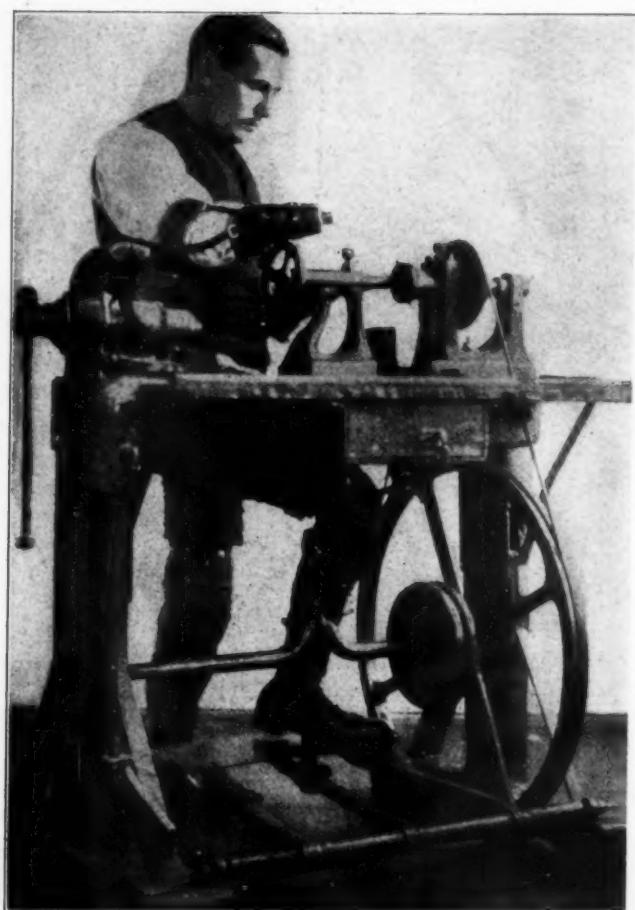


Fig. 5. Discharged soldier, wearing two artificial arms and feet, again working at his trade as a wood turner.

where these poor cripples are trained, first to use their artificial aids, such as hands, arms or legs, to the best possible advantage, and then to teach them new trades in cases where they are unable to resume their former occupation. To what extent they are successful is shown in some of the accompanying illustrations. Many lectures are delivered by medical and surgical authorities to the laity and hundreds of thousands of pamphlets are being sold and distributed free to the general public in order to ease their minds in regard to these disabilities, by showing them to what extent the surgeon and the orthopedist are able to improve the lot of their relatives who are coming home to them as cripples. We have especially in mind a pamphlet entitled "Kriegs-krueppel Fuersorge" by Professor Dr. Konrad Bisalski of Charlottenburg. This con-

because they will be assured there of permanent and profitable employment for many years to come. The European market on surgical instruments and supplies has practically been closed since the beginning of the war and American surgical instrument manufacturers were forced to increase their plants and are training new men for the purpose of producing at least to a certain extent those instruments and supplies which have heretofore been imported. We are reliably informed that it has been a most arduous and so far not a profitable undertaking, owing to the fact that the variety of surgical instruments is so great and the cost of making tools for them, installing machinery, etc., is so large that it will take years before the trade can be put on a profitable basis unless it receives some encouragement at the hands of the government in the way of protection.

Suction Apparatus for Use in Operations in the Mouth and Throat

BY DR. F. W. ALTER, Cleveland, Ohio.

That a dry field of operation is of inestimable value in tonsillectomy, cleft palate, and all other operations in the mouth and throat is now fully conceded by all operators, especially by those doing nose and throat work.

The apparatus devised by Dr. Alter and illustrated here is so constructed that it requires no electric motor



Fig. 6. Discharged soldier, who has lost both arms and both feet, supplied with artificial members and again working at his trade as locksmith.

tains forty-four pages of text and eighty-four illustrations, some of which are here reproduced with the author's permission. Large cash prizes have been offered by individuals and societies for the purpose of inducing inventive minds to produce perfect artificial limbs, especially artificial arms, this being considered to be of greater importance than artificial legs, because a man wearing artificial legs may still be proficient in his work, yet this is rarely the case if he has lost one or both of his arms.

A great deal has been written in the daily papers to the effect that when the war is over there will be a great influx of working people from Europe; but we are fully convinced that this will not be the case with orthopedic mechanics and surgical instrument makers. On the contrary, it is feared that many of those who are now engaged here in this work may emigrate to the old country,



Dr. F. W. Alter suction apparatus.

power, and can be used either in the office or operating room. It consists of the well-known Chapman filter pump and a 2-gallon bottle, to the neck of which is securely cemented a threaded collar, over which is screwed the cap, carrying a pressure gauge, an inlet and outlet tube, with rubber tubing for making connections, and a specially designed suction cut-off. The apparatus can be attached to an ordinary water faucet, and the gauge registers the vacuum in the bottle. The main advantage of the device is in the manner of working the suction portion. This part acts as a suction when the small piston at the end is pressed with the thumb and shuts off the suction when the pressure is released. The use of this instrument enables the surgeon to perform a true bloodless operation, and, as there is no sponging, there is less post-operative edema and soreness.

By the use of this apparatus considerable time is saved, and the advantage of an even anesthesia will be appreciated, as there is less danger of shock and anesthetic calamity.



Please address items of news and inquiries regarding The Hospital Kitchen (such as equipment and other matters connected with the kitchen and dependent departments of food storage and service) to The Modern Hospital, Kitchen Department, Metropolitan Building, St. Louis.

Kitchen for 500- to 600-Bed Hospital

The plan (page 149) shows the kitchen equipment necessary for a hospital of large size—500 to 600 beds. The plan is based on the assumption that the dishwashing will be done either in the ward serving rooms or in a separate department specially located with the view of the greatest convenience to the general plan of the hospital. The design of the equipment is also based on the use of food wagons to carry away the food, with the exception of that required in the staff and help's dining rooms, for which steam table accommodation is provided.

Center ranges are shown with eight ovens, a broiler being provided on one side. The ranges are surmounted by a canopy connected to a vent of sufficient size to carry away the vapors and hot air, and prevent any of the heat getting into the kitchen. On each side of the ranges are the cooks' tables, with pan racks over them and a sink in each table. On one side the table also contains a bain marie and steam table for meats. At one end of the ranges is another long table for service.

The steam cooking department, which is a very important feature in a large institution, consists of five 4-bushel capacity (each) vegetable steamers, one 25-gallon, two 40-gallon, two 50-gallon, and two 60-gallon stock kettles, and two 80-gallon grease kettles, all steam jacketed. At one end are three institution urns—one 50-gallon for coffee, one 50-gallon for tea, and one 80-gallon for water.

Each steam apparatus should have a copper pipe leading from its vent to a header pipe to carry away the steam, the header pipe being provided with a drain or bleeder pipe, to take care of the condensation, to drip pan or depression in floor.

The entire steam outfit should be set in a steel pan with raised edges, or else in a depression in the floor, with drainage. A copper canopy should surmount the entire steam outfit, with a gutter inside to carry away the condensation, and the weight of copper should not be less than 32 ounces.

A large steam table is shown near the doors, and this and the service table will supply the wagons as they pass through the doors or to the elevators.

The vegetable room and scullery, with a vegetable peeler, sinks, and ample table accommodations, will care for the preparation of vegetables and the washing of the pots and pans. The entire equipment is placed well away from the walls, so as to allow easy access for cleaning.

Next the vegetable room is the bake shop, with a large brick-set oven, pan rack, pastry stove, steam-jacketed kettle, proof oven, dough trough, dough mixer with cake mixer, egg whip, etc., cooling racks, table, and sink.

A help's dressing room, with lockers, wash basins, and toilet, is located so as to be entirely shut off from the

kitchen proper. The store room shown is intended for the supply of the current needs of the kitchen, and in a large city is amply sufficient, but in an institution located in the country a main storage room of much larger capacity would be required, from which the supplies would be transferred to the kitchen store room for current needs.

One end of the store room is for the dry provisions, and the other end contains the refrigerators and a meat block and cutting table, together with a meat chopper and a slicing machine, which latter is essential if economy in the service of cold meats is desired. The meat chopper is also a necessity, as it can also be used for chopping everything which requires to be chopped. It is a good plan to have all the shelving in the store room of metal and mounted on casters, so that they can be easily moved out from the walls for cleaning.

The area of the kitchen, including bake shop, store room, etc., is 61x80 feet, with the maximum window space, and none of the equipment touches the walls, which is the only way to insure sanitary conditions.

P. B. SCHWEIKERT, Cincinnati.

War Brings New Porcelain Utensils

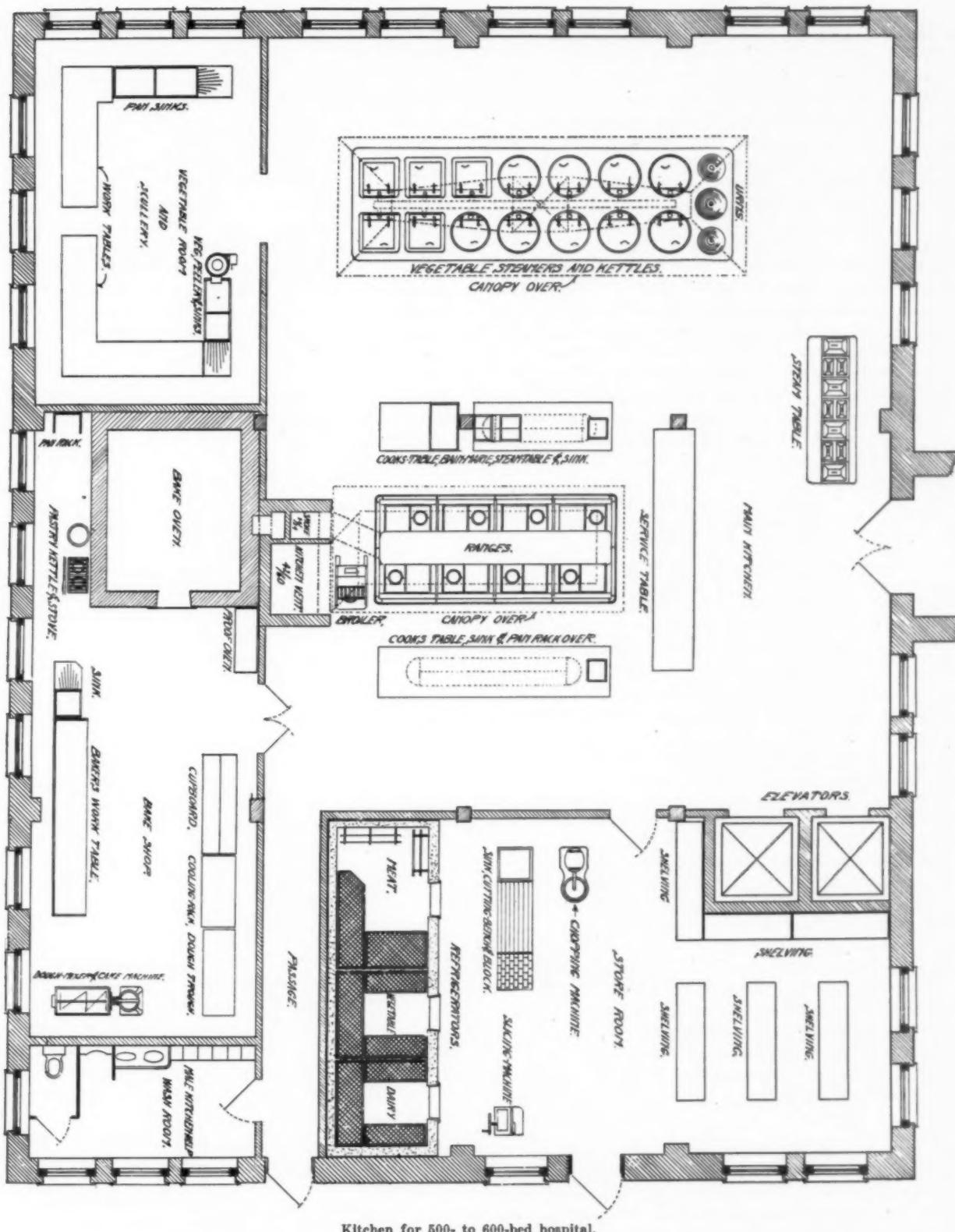
One of the results of the war was the stoppage of the importation of laboratory porcelain, and this has resulted in the manufacture of laboratory porcelain in this country, which has stood the hydrochloric acid tests equally well with that manufactured by the Royal Berlin Pottery in Germany, which until now has been regarded as the standard.

Experiments with porcelain for cooking purposes had been going on for several years and had culminated successfully about the time that the shortage of laboratory porcelain took place; and, as the batch, body, and glaze necessary for these utensils is the same as for the best porcelain cooking ware, the manufacturers had only to adopt the molding process necessary to produce the laboratory ware and fire at the same temperature (2,600° F.) as their cooking porcelain ware to produce the laboratory ware and supply the demand in this country successfully.

The cooking porcelain ware is being produced in ivory, white, brown betty, and olive green, plain and decorated, and for private ward work the pretty decorations and delicacy of the porcelain is made highly attractive, while for ordinary use the plain porcelain will give the best service, because actual breakage is the only thing which can affect it, as it cannot crack or craze from the heat of the oven.

The credit for saving the laboratory situation belongs to the Guernsey Earthenware Company, of Cambridge, Ohio, who were the pioneers in the introduction of American-made earthenware cooking utensils which are in such general use today. This earthenware product is fired at 2,400° F., while the porcelain cooking ware which they have recently put on the market is fired at 2,600° F., the same as the porcelain laboratory utensils.

Dr. William A. White, superintendent of the Government Hospital for the Insane, Washington, D. C., is asking that the name of the institution be changed to read merely "Government Hospital," and recommends the introduction of a policy of voluntary commitment to partially supplant the present plan of forced court commitment. Dr. White declares that needless attention is called to the malady by the present name of the hospital, and he is of the opinion that voluntary commitment would offer relief to many persons who need treatment and would gladly avail themselves of it but for the stigma of the condemnation of a lunacy court.



Kitchen for 500- to 600-bed hospital.

Sleeper-Davis Memorial Hospital, Peking, China

This new hospital, recently erected by the Methodist Episcopal Church at a cost of \$180,000, is a five-story structure and has accommodations for 150 patients. It is thoroughly modern in both construction and equipment. Dr. Wallace Butterick, director of the China Medical Board; Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, New York; and Dr. William H. Welch, professor of pathology at Johns Hopkins University, were guests of honor at its dedication.

French and American Artificial Legs

Dr. Drocroquet recently read a paper before the Paris Academy of Medicine on the "Gait of Men Provided with an Artificial Leg." The doctor, in making a comparison between the French and American appliances stated that the latter, though more fatiguing, permitted free flexion of the knee, resulting in a better gait with such a leg. The gait in cases of amputation of the lower leg is often so perfect, whether the appliance be French or American, that the amputation is not suspected.

Boiler Room Economics¹

By THOMAS HOWELL, M. D., Superintendent, and PHILIP MURRAY, Engineer, New York Hospital, New York City.

About ten percent of the expenditures of the average hospital are for the engineering department. It is, therefore, apparent that this is an important department. As such it deserves careful study and oversight. In this paper the writers discuss some commonplace engineering subjects, but make no attempt to treat them in an exhaustive or scientific manner.

The question as to whether a hospital had better produce its own electricity is one which is occasionally asked. This question has been raised more frequently of late because, in the large cities at least, so many business houses, for reasons of economy, convenience, and cleanliness, or in order to utilize space more advantageously, are abandoning their electrical generating plants, and are buying their electricity from commercial plants. Their action naturally causes observing hospital superintendents to ask the question whether it would not be more advantageous for them to buy their current.

In this connection it must not be forgotten that the requirements of a business house or factory are very different from those of a hospital. The demands of a hospital are usually much more varied, and are continuous day and night, including Sundays and holidays.

While freely admitting that factories and business houses are frequently more satisfactorily served from a central plant, it is nevertheless our opinion that hospitals, at least those with over eighty or a hundred beds, should produce their own electricity. Hospitals of this size will usually have heating plants, steam laundries, steam cooking apparatus, steam sterilizers, refrigerating plants, etc. These serve to create a demand for steam throughout every hour of the year.

The steam required by part of these activities at least can be used in making electricity, and this without any loss of efficiency. In this way, electricity is produced as a by-product, and at a very insignificant cost. This is particularly true during the winter months when a large amount of steam is required for heating purposes.

Strange as it may seem, it has been proved that steam which has passed through an engine is more efficient for heating purposes than the same amount of steam direct from a boiler.

Mr. Wright, Superintendent of the S. R. Smith Infirmary, Staten Island, reports that in 1912, the last year that the hospital purchased its electricity, its heat, light, and power cost was \$8,068.21. In 1913, with its own electrical plant, the cost was \$6,458.91, and in 1914, \$6,369.89. This is a saving of over 21 percent. Other hospitals have shown equally satisfactory results.

COAL

Bituminous coal will give better results, pound for pound, and dollar for dollar, than will anthracite, but in many cities the use of bituminous coal is prohibited on account of its tendency to produce great volumes of smoke. Where it is not permissible to fire with bituminous coal, one of the steam sizes, or cheaper grades of anthracite coal, is ordinarily used. These are known as pea, buckwheat, and rice.

The size and quality of the coal best fitted for its use must be determined by each hospital by actual tests. At the New York Hospital we have found by experience that the best grade of No. 1 buckwheat is the most economical for our plant.

¹Paper read in the Annual Conference, American Hospital Association, San Francisco, June 25, 1915.

We pay about fifteen cents a ton above the regular price for No. 1 buckwheat in order to obtain coal from a certain mine, because it gives us the best results. A trial of No. 2 buckwheat, which sells for about fifty to sixty cents less a ton than the coal we are using, gave unsatisfactory results. Our experience with pea coal was also unsatisfactory. It cost more per ton than the No. 1 buckwheat which we use, and the number of tons burned was about the same. What we would emphasize in connection with this subject is that every hospital should make careful tests to determine what coal best meets its requirements, and then to insist upon getting it.

Facilities for Weighing. Some dealers are dishonest. Some dealers have dishonest employees. Sometimes honest mistakes are made in weighing. For these reasons no hospital which buys coal can afford to be without suitable wagon scales. We know of one large hospital which had no wagon scales because they were considered unnecessary and expensive. At the end of the year it was discovered that they were short nearly 1,000 tons of coal. It is unnecessary to add that an order for scales was placed immediately.

MECHANICAL STOKERS

Mechanical stokers are occasionally of considerable service in bringing about boiler room economy. The Hospital of the Good Shepherd, at Syracuse, N. Y., installed a set, and in eleven months saved \$3,600 from its coal bill. Dr. Pratt writes concerning it as follows:

"It burns only the amount of coal necessary to obtain the steam pressure desired. The cheapest kind of soft coal can be used. As it is a self-feeder, one man can easily take care of two boilers and also look after the engine room. The mechanical stoker has this additional advantage, that, being self-fed from a magazine that is never allowed to become empty, the cold air does not reach the fire nor the metal work of the boiler, and so saves loss of steam and destruction of tubes and other iron work, as is the case when the door to fire box is frequently opened to throw on coal."

BOILERS

Boilers must have sufficient capacity to produce the required amount of steam without forcing. They must be kept free of internal scales, and the tubes and flues must be frequently cleaned.

The brick work must be kept in good repair in order to prevent air leaks into the fire box and combustion chamber. It is very essential that the grate bars in the furnace be of a suitable design. If this is neglected a considerable amount of coal may be wasted.

The furnace doors should be tight, and only a sufficient admixture of air admitted to consume the gases leaving the furnace.

There should be a feed water heater of sufficient capacity to supply water to the boilers at about 200 degrees. Pumps designed to pump hot water are essential.

Much depends upon the fireman, and there are very few who are competent. A careless fireman will nullify all attempts to secure boiler economy. When you inspect your boiler room observe carefully the work of the fireman. Notice whether he spreads the coal. To insure perfect combustion coal must be spread evenly and thinly over the fire.

In cleaning the fires the fireman should do so as rapidly as possible, as the open furnace doors allow the cold air to rush in and cool the boiler. Care must be taken not to dump unconsumed coal with the ashes.

It is very essential that the water in the boiler be kept at the proper level.

A damper regulator is necessary, as it prolongs the life of the boiler and effects a saving in coal. However, with a mechanical stoker burning soft coal it cannot be used, for it defeats the purpose of the stoker and produces great volumes of black smoke.

Boiler Scale. One cause of boiler inefficiency is scale. This scale consists of impurities which are precipitated from the water when heat is applied to it.

Scale is familiar to you all. You have seen it in the steam kettle on the kitchen range. Scale collects on the inside of a boiler, on the tubes, shell, and head. It acts to thicken these, and accordingly more fuel is required to produce the requisite amount of steam, as the heat must pass through the iron of the boiler and also through the scale, which is a poor conductor. It is apparent, therefore, that the more scale there is the greater the waste of fuel.

Many engineers favor the use of compounds in removing the boiler scale. Our results with compounds have not been satisfactory because of their tendency to cause foaming in our boilers, thus carrying the water from the boilers to the engines, a dangerous result. Under certain conditions these compounds may be of service, but we have found it safer and more economical to remove scale by hand.

ENGINES

Opinions are divided as to the most economical engine, but no matter what kind of engine is installed it must be given careful oversight in order to obtain economical results. There is considerable loss of steam, and, consequently, of coal, when the internal parts of the engine are neglected. Care should be exercised in seeing that all valves are properly adjusted, and that the piston and springs are kept in proper alignment. Leaky stuffing boxes and valve stems show want of care on the engineer's part. It is very desirable that steam traps on high pressure systems be kept in good working condition, as they are a source of loss if not kept in proper order.

PUMPS

Elevator, house and other service pumps are often overlooked, and their leaking pistons and steam valves are a great source of loss that is not apparent to the casual observer.

EXHAUST STEAM

With non-condensing engines exhaust steam is a fruitful source of loss, especially during the summer months, but, as stated before, during the cold weather this steam can be used for heating purposes, for which it has been found more efficient than direct steam. Exhaust steam can also be used in the laundry drying rooms. It is not practicable to use it for cooking purposes. It should be, however, used in heating warming tables, etc. One of the great uses of exhaust steam is in heating water for the house service. It is a decided waste to use live steam for this purpose. At the New York Hospital water was formerly heated by live steam, and the results were unsatisfactory on account of the expense, and because the thermostatic control did not always control and as a consequence the water was frequently either too hot or too cold. Finally a hot water heating device operated by exhaust steam was installed, and while it has no thermostatic control it has proved very satisfactory. This change resulted in an annual saving of approximately \$3,000.00.

LAUNDRY

In the equipping of a laundry plant it is desirable that each piece of machinery have its own motor attached, as

in this way it is possible to operate any one machine without operating the entire plant. Electrically heated flatirons and body ironers consume a great amount of electricity. At the New York Hospital we have found steam presses very much more economical than electrical body ironers, and also more useful and easier to operate. We estimate that our two electrically heated body ironers consumed about \$3.00 worth of electric current daily. They were replaced with three steam presses, and the cost of operating these is not appreciable.

ELECTRIC LIGHTING

When we used carbon filament lamps at the New York Hospital, and were perhaps a little careless generally about the amount of electricity consumed, our ampere meter during the winter months frequently showed that we were delivering 900 amperes of current. Since Mazda lamps of the tungsten type were substituted for the carbon filament lamps, and other economies introduced, the ampere meter rarely indicates that we are using over 450 amperes. Too little thought has been given to the lighting of institutions. In many instances the lamp fixtures are not properly located, and the number of lamps is too large or too small; for instance, in one of our small sterilizing rooms, which is very high, we had a cluster of eighteen lamp bulbs against the ceiling. By lowering the fixture we got just as efficient light with four bulbs.

MINOR ECONOMIES

By sifting the ashes from the kitchen ranges, it is possible to reclaim fifteen to twenty tons of coal annually. However, where gas sells for eighty cents or less a thousand cubic feet, it will be found much more cleanly and convenient and about as economical to burn gas in the kitchen ranges. We have done our cooking with gas for a year, and have found it very satisfactory. We should not consider again the use of coal in kitchen ranges.

THE ICE PLANT

To get the best results out of a refrigerating plant it must be carefully looked after. During the winter months when the demands upon it are very light, the engineer should thoroughly overhaul it. It is particularly essential that he should see that the circulating water coils are thoroughly cleaned. If these coils are allowed to get choked up with sediment the efficiency of the plant is reduced to the minimum. We have found that neglect to clean out the coils of our plant for six or eight months will reduce the efficiency fifty percent. In other words, before the tubes are cleaned out it is necessary to operate the plant twenty-four hours a day, but after they have been thoroughly cleaned it is only necessary to operate the plant twelve hours a day.

PIPING

It would hardly appear necessary to call attention to such obvious wastes as leaky pipe joints and valve stems, and improperly covered steam, hot water and brine pipes. But there are many well-managed hospitals where too little attention seems to be paid to these sources of waste. Superintendents will do well to thoroughly inspect the hospital piping at frequent intervals. They should insist that the engineer promptly and properly repair all pipe leaks instead of resorting to tin cans to catch the drip. If you are planning a new hospital, insist that the steam, hot water, and brine pipes be so located that they are easily accessible for repairs and re-covering. Pipes buried in the walls and floors have given us no end of trouble and expense at the New York Hospital.

HINTS FOR HOSPITAL SUPERINTENDENTS

This column is maintained as a help and reminder to hospital workers about the little things in administration. It is urgently requested that everyone contribute his and her "hints." Each item added to our knowledge helps to fill the common storehouse from which all may draw supplies.

Some two or three years ago an enterprising firm put out some very excellent chair and bed and operating table cushions and pads. Since that time a good many hospital people have been heard to say, when speaking of these pads, that they made their own and found it unnecessary to buy commercially made devices of the sort.

The hospital people had better think about this just a little bit; as a matter of fact, the hospitals do not make their own cushions and pads; they take a clean sheet or a clean blanket, or a pillow, and use that. If it happens to be that the patient needs propping over on one side in the bed with a pad at his back and a new blanket is used, it is liable to get stained and soiled; it costs 50 cents to launder a blanket, to say nothing of the damage to the fabric in being washed.

The idea of "making something else do" is poor hospital economy. Better buy your cushions and pads from those who make a business of making them, and who make them in large quantities and probably a good deal cheaper than you could, even if you went about the business in the right sort of way, which you do not.

Miss Maud L. Cook, R. N., superintendent of the Marietta Phelps Hospital, Macomb, Ill., sends in the following hints:

Our hospital is only 25 beds, and financially we are not in good condition; but I may offer a suggestion or two for the benefit of other superintendents similarly situated. I am refrigerating my own ice. I have a large zinc tub, thoroughly scrubbed and elevated so that its contents cannot be polluted. It is filled with sterile water, and, while we have had four and five typhoids, it has about sufficed for our needs.

I read the discussion on the wastage of butter. Since coming here I have bought a set of butter paddles and have balls made, enough at a time to keep us going for forty-eight hours. This is from tub butter, and even the smallest fragments are not wasted. I serve one on each plate, and allow six or eight extra on a plate at the table, and serve a second helping from this with a nut pick. The butter balls look very nice and have the charm of economy.

More friends are made for a hospital by courtesy at the door than by any other one thing. The doctors and nurses may be ever so able and attentive and the hospital equipment ever so good; if a patient or his friends have met with courtesy on the threshold, the bad taste will stay a long time, and is very bad to remove. And don't forget that your telephone switchboard is a part of your front office-service, and that a young person who might be quite cour-

teous when face to face with a visitor might easily be very ugly over the phone. Better "eavesdrop" a little bit in this matter and take seriously complaints that reach you. The doctors will give you a lot of help in checking up abuses of courtesy if you will encourage them to do so.

A trustee, or staff member, or a superintendent who employs hospital property or funds or facilities to his own personal advantage is robbing the sick—just as surely as though he stole part of a meal off a tray. A trustee who compels the hospital to buy from a house in which he is interested, and permits that house to charge more for goods than they could be bought for under competitive bids, is stealing from the hospital; call it by any pleasanter name you please—it is just common stealing, and stealing at that from sick, helpless, defenseless people.

The physician or surgeon who wastes hospital property in the form of supplies, or who demands for himself or his private patients more than the hospital can give to all other doctors and patients, is guilty of one of the meanest forms of graft. The doctor who demands or accepts a commission from a hospital for sending in a patient is robbing the patient quite as conclusively as though he picked his pocket while the patient was sick in bed.

If you are going to get out an annual report this year, why not take an odd few minutes off now and then and think about it? Ninety-five percent of the hospital reports are as effective as blank cartridges would be in war. They don't tell what they start out to tell, and, if they told it ever so eloquently, the information would be absolutely useless.

Annual reports are published for one of three purposes: (1) to give the hospital board and the hospital's financial supporters information about the work of their institution for the past year, so that they may know the exact situation and meet it intelligently; (2) to give an account of the scientific work that has been done for patients, for the benefit of medical science; (3) as a frank piece of publicity to win friends for the hospital and bring new and greater financial support.

You can't kill all these three birds with one stone, so why not pick out the bird you want the most, and select a stone that will just about fit his case? Long lists of diseases with meaningless names mean nothing to non-medical people, and medical men, with the possible exception of the few members of your own staff, don't care a fig whether you treated nine or twenty cases of colelithiasis, or whether you did one or a hundred gastroenterostomies, or whether fourteen of them were gastroileostomies.

On the other hand, figures are very dry reading if carried beyond the merest generalities; it means nothing to the reader that you bought and used 14,748.3 pounds of fish, which cost \$1,427.19, or that your bill for repairing surgical instruments was \$194.13; and, even if you were to say that your per capita cost was \$1.59, it would mean nothing to anyone—nothing to the average layman, because he doesn't know what the term "per capita cost" means, and it means nothing to a trained hospital administrator or a medical man unless you accompany the figures with a detailed statement showing what the \$1.59 covers and includes.

Better, in your annual report, make up your mind about the audience you want to reach, then talk all the way through a language that particular audience will understand, and about things it will be interested in. In that way your report will get you something.